

SIMON (Gus.)

Dup.
R.M.T.

THE
OPERATION
OF
VESICO-VAGINAL FISTULA:

A COMPARISON OF THE
METHODS OF OPERATION

OF

N. BOZEMAN, M. D., New York, and Prof. GUSTAV SIMON,
Heidelberg.

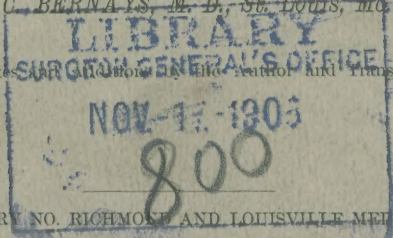
ILLUSTRATED WITH TWELVE WOOD CUTS.

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BY

A. C. BERNAYS, M. D., St. Louis, Mo.

With Notes and Corrections by the Author and Translator.



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OBITUARY.

[From American Journal of Obstetrics.]

PROFESSOR GUSTAV SIMON was born at Darmstadt on the 30th of May, 1824. He was educated at Heidelberg and Giessen, taking his medical degree at Giessen. He then accepted the position of military surgeon at Darmstadt. While here, he visited Vienna, Paris, and London for scientific observation. In 1861 he was called to Rostock, where he became professor of clinical surgery and director of the hospital. In 1867 he was chosen professor of clinical surgery in the University of Heidelberg, which he retained till the day of his death. He was repeatedly invited to other universities, but preferred to remain at Heidelberg. In 1866 he was director of the Military Hospital at Moabit near Berlin. In the late Franco-Prussian war he was surgeon general of the Reserve Barracks of the Grand Duchy of Baden.

In 1851 he published his first treatise on "Gunshot Wounds," containing the results of experimental researches, with original views on the subject.

In 1854 he published a "Description of the Operation for Vesico-vaginal Fistula." In 1862 he published more extended observations on the same subject. And the last paper he wrote was on vesico-vaginal fistula, published only a few weeks before his death.

In 1868 appeared his "Communications from the Surgical Clinic of Rostock." They contain a long series of original observations, with some "New Methods of Operating in Cases of Incurable Fistulae," also "Double Puncture and Subsequent Incision in Cases of Abdominal Echinococcus and Hydro-nephrosis," "The Pendulum Method for the Reduction of Dislocated Humerus," "Kolporaphia Posterior for the Cure of Prolapsus Uteri," "Operation for Ruptured Perineum," "Contributions to Plastic Operations of the Face, Vagina, and Rectum," "Hare-lip and Cleft-palate," "On Covering Amputation and Resection Wounds with Diseased and Perforated Skin Flaps," "Treatment of Malignant Disease of the Vagina, Bladder, and Rectum by the Curette, and the Methods of Exposing them sufficiently to View by Using the Sims' Speculum for the Vagina and Rectum."

Among his last contributions to surgical science is his "Method of Rendering the Female Urinary Bladder accessible, and on Probing the Ureter in Women," a paper which, in the short space of six months, has appeared in four different languages. His "Manual Palpation of the Rectum, etc.," is now known and adopted by the Profession all over the world. He finished the second part of his great work, on "The Surgery of the Kidneys," but a few days before his death. The third and last part will be laid before the Profession in an unfinished state.

Until the last day of his life, he was busily occupied with the arduous duties of his profession.

The foregoing resumé of Prof. Simon's labors was furnished by his friend and pupil Dr. A. C. Bernays, of St. Louis, Mo., now in Heidelberg.

When in Europe, last summer, I made a visit from Paris to Germany especially to see Kœberlé at Strassburg, and Simon at Heidelberg. At Baden, I telegraphed to Simon, to know if he was at home, and received as answer: "Yes. Very ill, but most happy to see you." Arriving late, I went to see him at 9 P. M. He was in bed, and received me most cordially. I remained but a short time, but in ten minutes he arranged a day's work, to begin at 9 the next morning. On my arrival, next morning, I found several young doctors and many patients in the ante-chamber. Simon gave me a real clinical lecture for more than three hours, illustrating his method of operating for vesico-vaginal fistula, lacerated perineum, for exploring the female bladder, probing the ureters, and for exploring the abdominal cavity, by passing the hand into the rectum.

OBITUARY—GUSTAV SIMON.

It was a hard day's work for a man in good health. But he did not seem to think of himself for a moment. He was wholly absorbed by the pursuit of science for the relief of humanity. His genius, learning, industry, and skill are known and recognized by the Profession everywhere; and we call him great. But his qualities as a man could only be realized by personal contact. His earnestness and enthusiasm, his sincerity and honesty, his generosity and kindness of heart, impressed all with the conviction that he was one of the best of men.

I spoke to him of his health. He supposed he had emphysema, with some congestion of the lungs. He was not aware of his real condition, though it was well understood by his friends.

The propriety of withholding from such a man the gravity of his disease seems to me questionable.

He died on the twenty-seventh of August last, of an acute attack of oedema of the lungs, caused by an immense aneurism of the pars descendens of the thoracic aorta, which had greatly compressed the lower half of the left lung and pulmonary veins. The circumstances of his death are curious and interesting. One of his favorite assistants, Dr. Bernays, called, on the morning of the 27th, to read to him the translation of his paper on vesico-vaginal fistula, which he wished to see published in America. He expressed himself as well pleased, and Bernays was about to leave, when Simon, who was in bed, called him back, and said: "Don't forget to send my needle-holder and some needles to Mr. Marion Sims, and tell him I shall go to the Congress of Gynecologists in America if my health improves."

This was but twelve hours before his death.

At 4 P. M. Dr. Braun, his first assistant, called to report the condition of patients whose after-treatment he was conducting in the hospital for Simon. Simon gave him instructions about having some important cases ready for operation at 11 the next morning. Dr. Braun left at 6 P. M., and he had passed but a few steps from the villa, when Simon was taken suddenly with dyspnoea. He raised up in bed, ordered some one to open the window and call Dr. Braun, who hurriedly returned, expecting to find his friend and teacher dead. Simon requested him to call a carriage and go for his tracheotomy instruments as soon as possible. Braun obeyed, and returned in twenty minutes with Dr. Haek. Simon now said: "Operate quickly; perform high tracheotomy." He refused to take an anæsthetic. Dr. Braun operated as quickly as possible. The veins of the neck were greatly distended, and there was consequently some trouble. Simon still hurried him on. There was a good deal of venous hæmorrhage, which had to be controlled before the canula could be introduced.

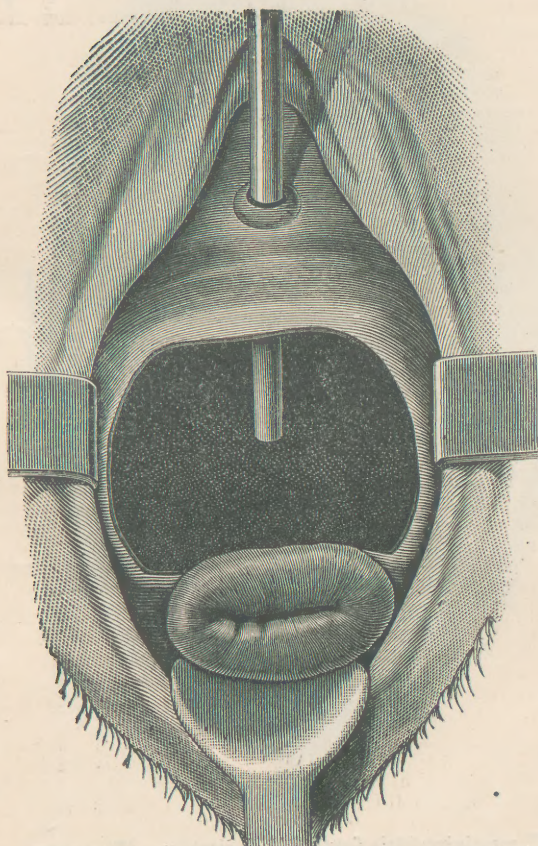
Prof. Simon then said he felt easier, and breathed freer. His pulse kept up till 10 o'clock, when there was a sudden collapse, and he died about midnight. And thus passed away one of the great lights of medicine.

The name of Simon was as well known and as highly honored among us as in his own fatherland. Science knows no boundaries. It is cosmopolitan, and its votaries all over the world are linked together in a common brotherhood. The success of one is the glory of all. The loss of one is a loss to all. Had Simon been an American, we could not have felt his death more keenly, nor mourned him more sincerely.

For a quarter of a century he has been prominently before the Profession, and always as the standard-bearer of an onward movement. His name is the synonym of progress, and his fame will endure for ages.

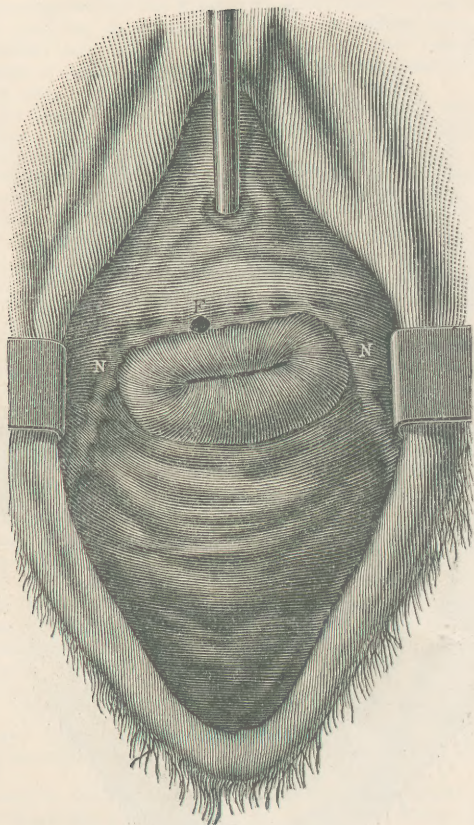
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Figure 1.



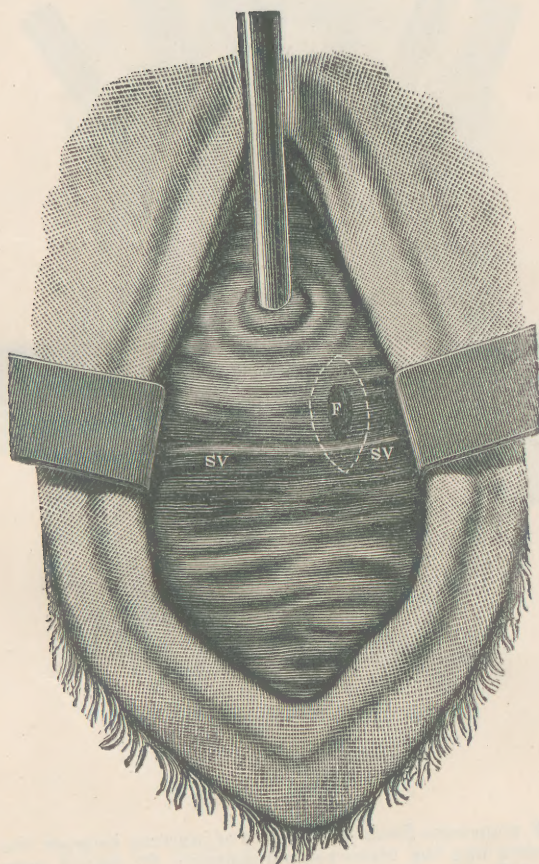
Original Defect.

Figure 2.



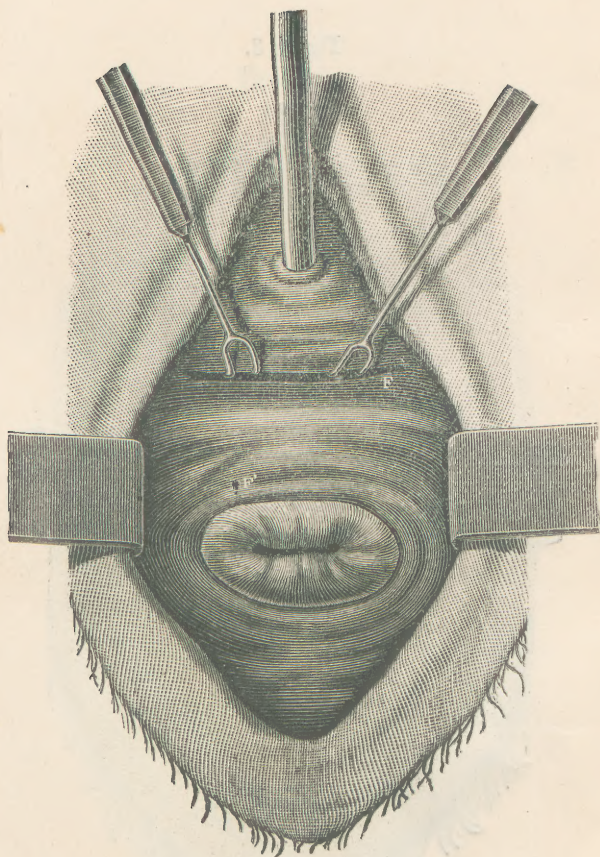
F, remaining little fistula; N N, cicatrix. (There are too many suture marks engraved.)

Figure 3.



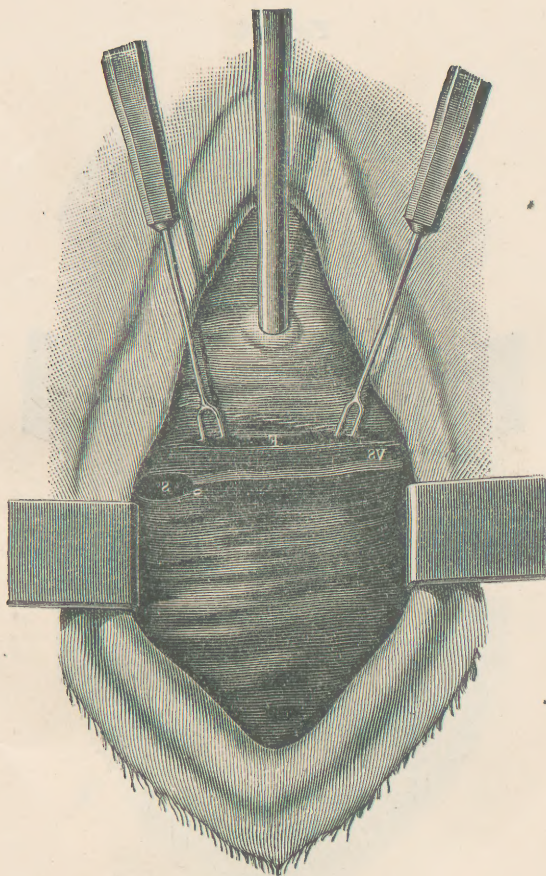
F, vesico uretero-vaginal fistula.; S V, kolpoplexis.

Figure 4.



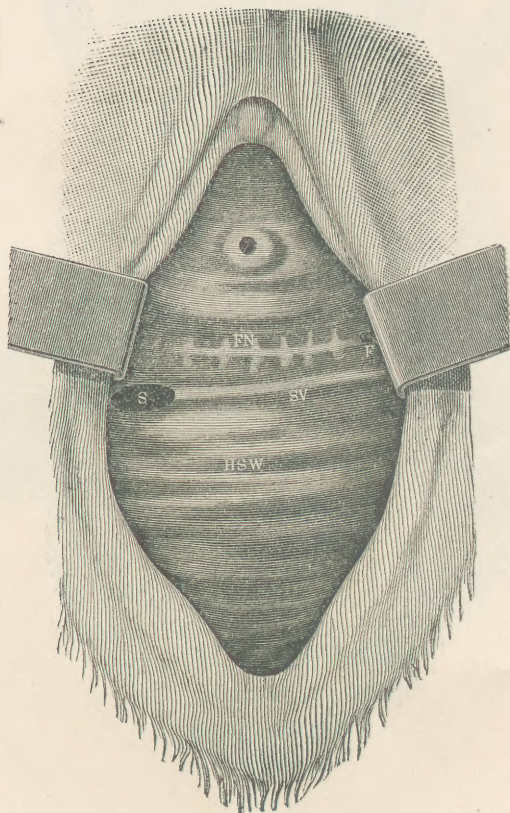
F, transverse fistula at the place of juncture between the urethra and the vesico-vaginal septum; F', second very small fistula caused by the gradual dilatation of the vagina. The contraction of the vagina and the deep groove at the place of location of the fistula could not be represented in the engraving.

Figure 5.



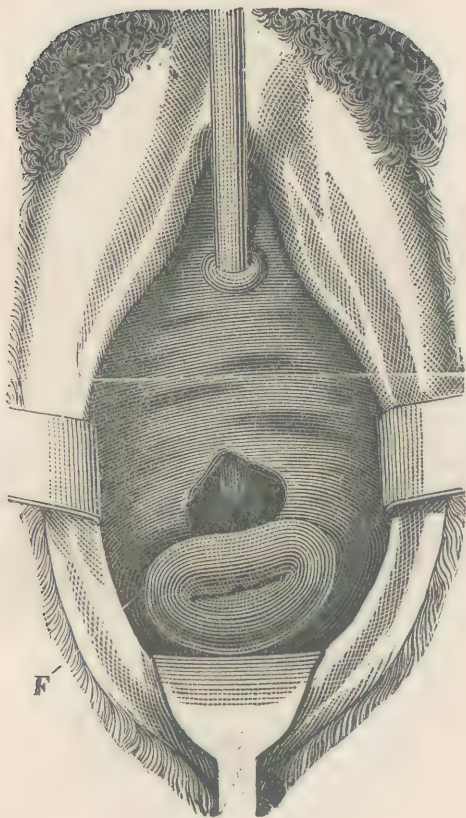
Before the operation. F, fistula; S V, atresia of the vagina; S, remnant of the vaginal canal. The deep groove of the urethro-vaginal and the vesico-vaginal septum at the location of the fistula is not engraved.

Figure 6.



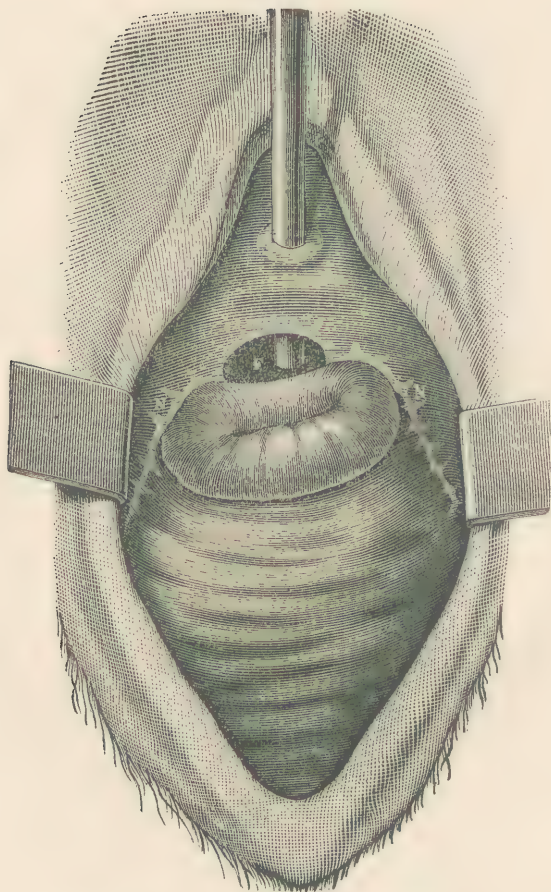
F N, cicatrix of fistula; F, remaining little fistula, laterally of the suture; S V, atresia of the vagina; H S W, posterior wall of the vagina.

Figure 7.



Fistula at the anterior lip of the os uteri. The fistula is drawn somewhat too small in its transverse diameter.

Figure 8.



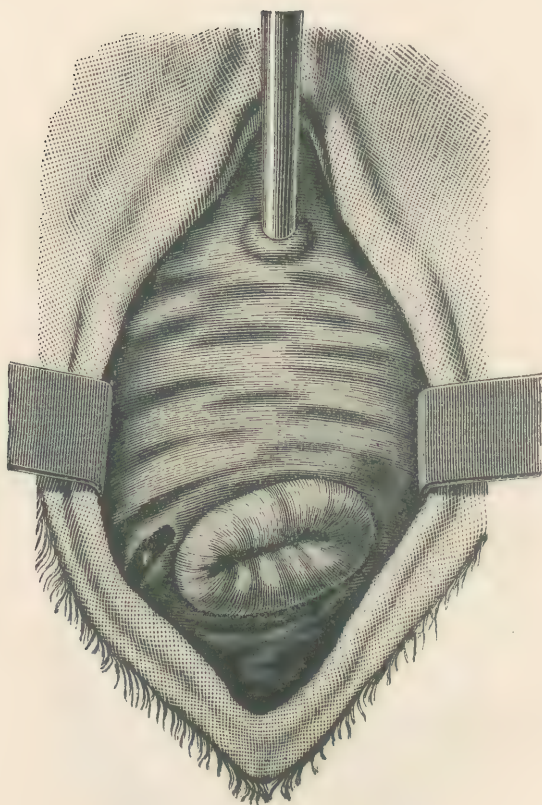
Shows the fistula left after Bozeman's operation of the fistula represented in figure 2. F, fistula; N, cicatrix. (Too many suture marks here.)

Figure 9.



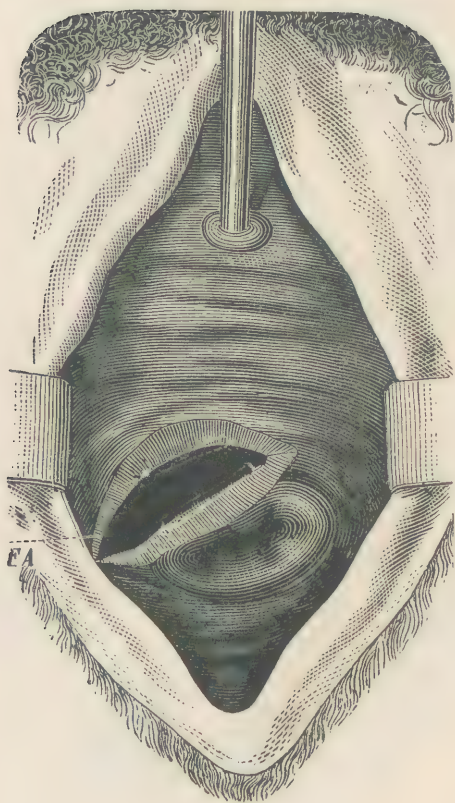
Shows fistula (figure 8) after cure. N, cicatrix; V S, ves-
tibular section; S M, split of the os uteri, Jobert's section.
(There are also too many suture marks here.)

Figure 10.



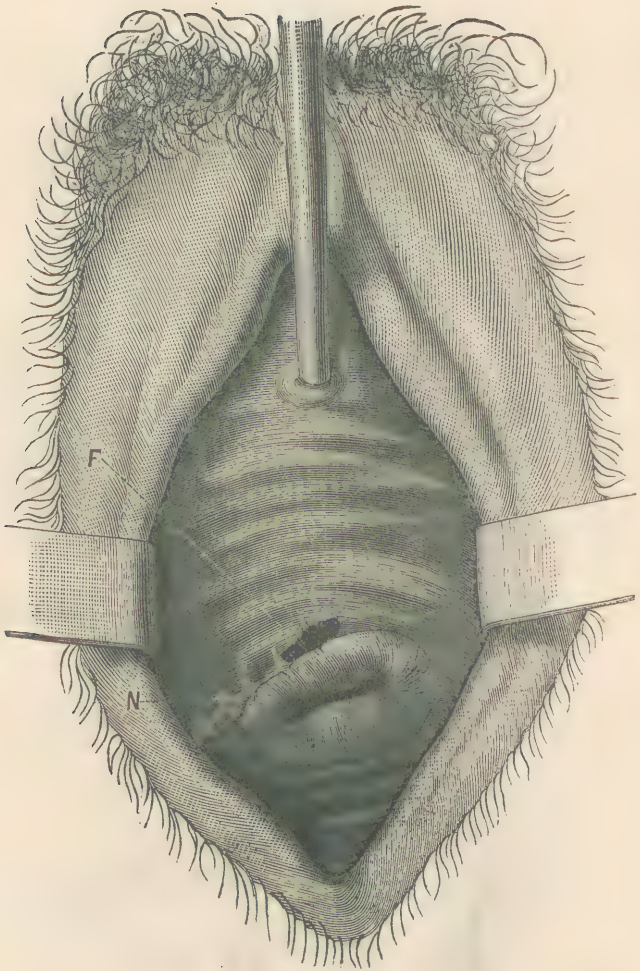
F, fistula in the lateral vault of the vagina. The fistula is by mistake represented in the right vault of the vagina. It lay in the left. The band-shaped contraction anterior to the fistula could not be represented in the drawing.

Figure 11.



F A, pared fistula, or appearance of the same after excision.

Figure 12.



N, cicatrix; F, fistula.

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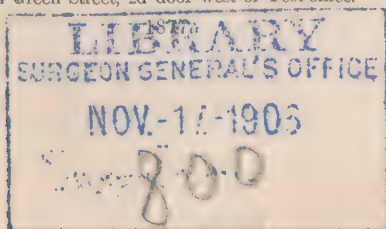
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VESICO-VAGINAL FISTULA.

INTRODUCTORY WORDS BY THE TRANSLATOR.

It was a certain sense of duty, by no means of pleasure, that prompted me to translate the following scientific article. As an apology, I can mention that the subject here considered is one of especial interest to American surgeons. To a young American, whose medical education has been exclusively attained in Germany, where American surgery has always been praised before me by my teachers, this work certainly afforded no pleasure. But as Dr. N. Bozeman, of New York, has deemed it correct to publish an article about certain things treated of in this paper in a manner not exactly in harmony with the facts, I think it is no more than fair to put Prof. Simon's statements before the profession in America. I assisted at every one of the operations, in Heidelberg, mentioned in this article, and examined their results. I think therefore that the translation, if not liberal in every particular, at least gives the sense and exact meaning of the author.

In the Fall of 1874, Dr. Bozeman, of New York, came to Heidelberg in order to become acquainted with my method of operating for vesico-vaginal fistula, and to show us his own. I was glad of the opportunity to see Dr. B.'s method, and, if possible, to be benefited by it; and therefore I instituted a series of operations, in which each of us operated on several cases, using our own methods, forming, as it were, a tournament. All operations were performed in the clinique in the presence of the students and assistants, several of them also under the eyes of our celebrated colleagues, Spencer Wells and Kœberlé. The after-treatment, which Dr. B. considered necessary in his cases, was conducted by himself with the help of my assistants, who followed his directions in a most scrupulous manner. The removal of the sutures and all subsequent examinations of the cases were performed in the clinique.

Our methods differ very materially. While I operate in the "Steiss Rückenlage," coccygo-dorsal position (an exaggerated lithotomy position), B. places his patient in the knee-elbow position; while I strive to dislocate all involved parts to the surface, B. operates with the parts in situ; while B. pares his edges to the far greater part with the scissors, I almost exclusively use the knife; while B. applies a very complicated button-and-wire suture, I use the simple-knot suture with silk thread; and while B. uses the catheter en permanence during the after-treatment, and frequently gives large doses of opium, I do not take the slightest measures of precaution; allow the urine to be passed unaided, and the patient wishing, I allow her to leave the bed on the second and third day. In cases which require preparatory treatment in order to render the fistula accessible to instruments, I take all the necessary steps immediately before the operation, while B. in such cases prefers gradual preparation.

DESCRIPTION OF THE CASES.

The cases operated on by myself were the following:

CASE I. (See figures 1 and 2 of the plate).—A Russian, twenty-two years of age, of small stature, shows a very large defect. The whole bottom of the bladder up to the os uteri and the upper part of the urethra were wanting; of the latter only $2\frac{3}{4}$ centimetres (1 inch) were left. (See figure 1.)

The defect reaches into the lateral parts, and upwards into the lateral vaults of the vagina. The bladder had prolapsed as far as the introitus vaginæ. An operation had been performed in Berlin without result.

I had left it optional with Mr. Spencer Wells, who was staying in Heidelberg for several days, and with Dr. Bozeman, whether I should operate on this large defect or on a fistula of but $1\frac{1}{4}$ or $1\frac{1}{2}$ centimetres in diameter, which also was at my disposition. Both gentlemen desired to see the operation on the large defect. The defect could only be covered by drawing the uterus forward and letting it partly supply the fistular loss. By some traction with a Musseux's forceps I could so draw forward the anterior lip of the uterus as to bring it in contact with the urethra. I pared the edges (behind the anterior lip of the os),

which was done without difficulty save in the posterior angles, and united them with eleven sutures. The line of union was of a semi-lunar shape, with its strong convexity towards the front (see figure 2 of the plates). During the first day only was catheterization necessary; after the second day the patient urinated voluntarily. On account of the considerable wounding of the bladder and traction on the united parts, spasms of the bladder ensued, which diminished only on the fourth day; there was also reiterated vomiting during the first two days. Sutures were taken out from the fifth to the eighth days. The defect proved cured, excepting a small fistula from the size of a lentil to that of a pea at the point of union between the anterior lip of the uterus and the urethra (see figure 2). This small fistula was afterwards operated on by Dr. Bozeman.

CASE II* (figure 3 of the plates).—I had six years ago completed an almost total obliteration of the vagina in a woman fifty-six years of age, which had originated subsequent to severe labor, by closing a transverse opening of one centimetre in length situated in the atresia. A cure with total continence was effected. At first operation a pyelitis calculosa suppurativa existed, which had constantly increased up to the present time. The urine was constantly mixed with pus, frequently showed alkaline reaction, and calculi had formed, of which at various times small fragments passed the urethra. Finally, six months before the reception of the patient into the hospital, a stone had sloughed through that part of the bladder and urethra situated before the atresia of the vagina, causing a fistula the size of a cherry-stone. The patient was emaciated on account of fever, loss of appetite, and pains in the bladder, sleeplessness, etc. Her wish for an operation was urgent, in order to be rid of the torture caused by the involuntary flow of urine. I was thus induced to operate. I made a longitudinal excision of the fistula, which extended forward to $1\frac{1}{2}$ centimetre from the orifice of the urethra, and backwards vertically through the cicatrix of the atresia of the vagina, and united the edges by means of six sutures, of which three were superficial and three deep. Fever increased after the operation, chills appeared, and the patient

* Dr. Kœberlé, of Strasburg, assisted in this operation.

died after six days. The united parts had become separated. The post-mortem proved the left kidney to be changed to a pouch filled with pus, as also the greater part of the right kidney destroyed by suppurative pyelitis. A calculus was found in the left ureter.

CASE III (figure 4 of plates).—Fistula in the upper third of the urethra about two centimetres from its orifice. The fistula represents a transverse slit of two centimetres in length and one-fourth of a centimetre in breadth. The vagina is so narrow at the seat of the fistula that scarcely the points of two fingers can be passed. The opening lies in a deep groove of the urethro-vesico-vaginal septum, which was retracted towards the arcus pubis, and very firmly attached to it. The edges of the fistula were much attenuated (see figure 4). The cicatricial atresia of the vagina extended upwards (longitudinally) more than one-half of a centimetre.*

Previous to operating, I intended to split the annular atresia of the vagina, and then, as I always had done, proceed to the operation at once. B., however, thought the result would be unsafe unless a gradual dilatation of the vagina had preceded, and offered to bring this about in two weeks. He cut through the cicatricial bands with the knife and introduced soft and hard rubber tents. The patient suffered the most excruciating pains in the vagina, the abdomen, and the region of the kidneys, and very high fever with chills set in, so that we thought her health seriously endangered. After six days of such treatment, the tamponade was abandoned. On recovery of the patient, the vaginal atresia remained nearly as considerable as before the tamponade. At the same time we ascertained, that at the proximity of the anterior lip of the mouth of the womb a new (very small) fistula existed.† A second trial of the gradual dilatation I considered improper, and according to my experience not

* This patient had previously undergone the operation of kolpoplexis by a German colleague. I reopened the obliteration in order to close up the fistula itself, which seemed not over-difficult to do.

† This little fistula was very likely not caused by ulceration in consequence of the tamponade, much rather had the tampon severed a small cicatrix pre-existing at this point. There was indeed no sign of ulceration visible.

necessary. Before the operation I split the cicatrices, which caused the atresia, with a probe-pointed knife. They were cut in various places, and more especially those bands which bound both angles of the fistula to the bone. Thereupon I pared the inturned edges of the fistula very broadly, and united them by means of five sutures. On the fifth and seventh days the sutures were removed. The fistula was closed, with the exception of a very small slit in the middle of the cicatrix. I predicted that this little fistula, most likely, would spontaneously heal, because it was enclosed between very deep margins. On the tenth day the patient was taken sick with a catarrh of the bladder, accompanied by strong fever and pains in the kidneys, lasting a fortnight. Four weeks afterwards, when these symptoms had disappeared, an exploration proved that the small opening was closed, and thereby the whole fistula totally cured. The following summer I operated on the small fistula near the mouth of the uterus, which had appeared during the gradual dilatation, and achieved a cure by two sutures.

CASE IV (figures 5 and 6 of the plates).—The patient, aged twenty-six, suffered from a transverse fistula in the upper third of the urethra, at the juncture of the urethra to the vesico-vaginal septum, complicated with very considerable atresia of the vagina. The fistula was located in a deep retraction of the urethro and vesico-vaginal septum—i. e., $2\frac{1}{2}$ centimetres further from the urethral orifice than in the former case. The vagina was contracted and laterally attached to the bone at the location of the fistula; one-fourth of a centimetre in its rear is a tough cicatricial mass, which reaches up to the os uteri, and almost completely shuts up the vagina. A probe can merely pass through a narrow canal on the right up to the region of the womb. The extent of the fistula in a transverse direction amounts to about two centimetres; its length is only about half a centimetre; its edges are adherent to the arcus pubis, and thereby difficult to expose (demonstrate). The angles of the fistula were deeply hidden in callous tissue (see figure 5). In this patient also I allowed Dr. B. to make an attempt to enlarge the vagina. After a bloody division nearly up to the os uteri the

tamponade was daily carried on, but the result was also negative. The pain became unbearable, and fever set in on the second day, which, by degrees, reached such a height, that towards the fifth day the tampons were abandoned. When the fever had abated, the atresial masses proved nearly as extensive as before. I therefore resolved to operate without previously resorting to gradual dilatation of the vagina. By means of several deep incisions to the rear and laterally, the cicatrices were divided in the region of the fistula, so that the instruments of dilatation could be applied and the attenuated margins of the fistula brought into sight. I now pared the edges and the deep groove between the urethro and vesico-vaginal septum in broad extent. The paring extended mainly into the mucous membrane of the vagina; only close to the fistula the whole thickness of the septum was pared away. The union was brought about by means of six sutures, their application especially in the left corner being extremely difficult. Immediately after the patient had been again placed in bed there was involuntary emission of urine, nor did this involuntary loss of urine cease thereafter. From the fifth to the seventh day the sutures were taken away, and we saw the urine ooze out at the left angle. An opening could not be detected, because we did not dare to draw asunder the fold in which the fistula was located. Only towards the end of the fourth week we found a very small opening at the left end of the otherwise entirely-healed fistula. It was seen to lay outside of the reach of the last suture mark. It had evidently never been closed up. In this way the involuntary loss of urine immediately after the patient's return to bed was readily accounted for. Unfortunately I had neglected to test the bladder as to its continence, while the patient was yet on the operating-table, by injecting water. Had I done so, the small opening would have been found and subsequently shut up (figure 6). In the course of the summer of 1875, I operated twice more on that small remaining fistula before it could be brought to a closure. It lay very deep in a mass of callous tissue, which was firmly attached to the bone. In the first operation I had pared the edges of the groove, and thereby made the fresh edges of the fistula very broad, and had applied

two very deep sutures, and confidently hoped that even the remotest part close to the bone was included in the loops of the sutures, although the bone was a great hindrance to their application. This time also I omitted to make the "continence test" by injecting water after the operation, having no idea that the cure would fail. But as soon as the patient had been brought to bed, I was again most unpleasantly surprised by the involuntary flow of urine, which had taken place after the *con-cours* operation. The fistula had again not been closed by the suture. At the next operation I separated the whole cicatrized mass in which the fistula lay, from the bone down to the depth of three-fourths to one centimetre, and had all the parts drawn over to the right side by means of sharp hooks. I could now operate exactly, and succeeded in closing up the fistula. Evidently I might have attained this end at the first operation had I not neglected to try the "continence test." Had I then reöpened the fistula, paring and sewing up the left angle, it would have been much easier, and might perhaps have been done without cutting the callous masses from the bone.

Dr. Bozeman executed the following operations:

CASE I (figure 7).—In a patient aged thirty years a fistula was situated in the anterior vault of the vagina; it measured $1\frac{1}{2}$ and 2 centimetres in diameter, and freely allowed the index finger to pass. Its posterior edge was formed by the anterior lip of the os uteri. It was located in the middle of the vagina, and was comparatively easy of access, because the vagina could readily be dilated (see figure 7). After the fistula had been exposed, in knee-elbow position, Bozeman* pared the anterior margin with the knife, the posterior with the scissors, increasing its size considerably, and making very broad wounds. These were united by five sutures transversely to the direction of the vagina, the anterior lip being united with the vesico-vaginal septum. On the eighth day the sutures were removed. One loop of wire was so retracted into the tissues that, after the

* Bozeman thinks the retention of a wire-loop totally harmless. Nevertheless, I had to crush a calculus of the bladder, the nucleus of which was formed by a loop of wire. The loop had been left after an operation for vesico-vaginal fistula one year before, and had migrated into the bladder.

pierced shot which contains the ends of the wire fastened within itself was cut off, it could not be extracted. The fistula is entirely cured; one piece of wire is yet retained.

CASE II (figures 2, 8, and 9).—Bozeman operated on the small fistula which had remained after my first operation (see figure 2). It was situated in the line of union between the anterior lip of the uterus and the urethro-vaginal septum, which latter was only $2\frac{1}{2}$ centimetres in length. The anterior edge of the fistula was pared with a knife, and the posterior margin and the angles with the scissors. Three sutures closed up the fistula, two of which were to the right and one to the left side of the urethra. At this operation Mr. Kœberlé, of Strasburg, was present; it lasted thirty-five minutes from the time the patient was chloroformed and strapped (buckled literally) on the chair. The edges had been pared off obliquely; at the os uteri the pared surface was very broad, about 1 and $1\frac{1}{4}$ centimetre; and even the lateral parts of the anterior edge of the fistula were made one centimetre. At the urethra itself (the middle part) the paring was one-fourth of a centimetre in width. The fistula was considerably enlarged; of the urethra there remained but $1\frac{1}{2}$ centimetre. The paring had been done in perfectly normal tissue, and a cure was therefore to be expected. During the first days the patient lost no urine. On the fourth and fifth days spasms of the bladder set in; the urine, which had heretofore been rather clear, now became turbid and mixed with mucus. On the seventh day, when Bozeman removed his suture apparatus, urine flowed from the right angle of the fistula; and at the exploration two days later the fistula proved reöpened in its whole extent, and was so much increased in size that the finger could easily pass through (figure 8).

The future fate of this patient was the following: The very considerable increase in the size of the defect, and the fact that the urethra is but $1\frac{1}{2}$ centimetre in length, made the prognosis for a second operation much worse than it had been for the former, and even after a successful operation as to closing the fistula, incontinence was with certainty to be expected. The chances would now have become especially unfavorable if, on paring, B's. plan of taking away large quantities of tissue

was adopted. Nevertheless, B. insisted that he could not only cure the fistula, but also establish continence. I therefore requested him to perform the operation once more. But Dr. B., who just then was compelled to depart, promised that he would return in the summer and operate on this fistula. I therefore kept the patient in the clinique (Academic Hospital) the whole of the summer and fall up to October, 1875. B. had been invited through one of his acquaintances living here, and I invited him twice myself in October for the very purpose of carrying out this same operation. Unluckily, circumstances did not permit him to come here. I had, therefore, to perform the operation myself. I reöpened the cicatrix of the first large defect very extensively into the lateral parts of the vagina, so as to make the uterus more movable; I also pared the edges very closely in their totality, drew the uterus downwards and forwards, and fixed it to the anterior pared edge with six sutures. The urethra itself was united to the anterior lip by means of one suture through its centre, while the other very deep sutures united vagina and uterus, and held the latter down towards the introitus-vaginæ. When the sutures were removed, five or six days afterwards, but one-half of the fistula proved cured. No doubt very considerable traction was the cause of this very poor success.

In the following operation I again separated the united parts of the fistula, cutting deep into the lateral parts of the vagina, as I had done in the previous one. The anterior edge of the fistula was pared sparingly in a very superficial oblique direction, so that the urethro-vaginal septum lost but two minims of its substance. Union was completed by means of eight sutures, of which two very thin ones united the urethra to the os uteri. At this time I was not satisfied to counteract the tension by means of deep-drawing sutures applied at the sides of the urethra, but I also separated the urethra from the arcus pubis by means of the *vestibular section*, and split the commissures of the os uteri, after Jobert, to the extent of $1\frac{1}{2}$ centimetre, in order to give mobility to the anterior lip. Perfect union was achieved throughout the extent of the fistula; but continence existed only while the patient lay on her back. When walking

or standing longer than one-fourth or one-half an hour, she lost urine. The urethra was at most $1\frac{1}{4}$ centimetre in length (see figure 9).

CASE III (figures 10, 11, and 12).—In consequence of heavy labor a woman, thirty-eight years of age, had acquired a fistula in the left vault of the vagina, which was no larger than to admit the nail-phalanx of the index finger. It represented a transverse slit $1\frac{1}{4}$ centimetre in length, and half a centimetre in width (figure 10). Anterior to the fistula the vagina was rather narrowed by a thin cicatricial band. The edges seemed to be attached to the bone. I attempted to expose (bring in sight) the fistula by means of a gutter-shaped speculum while the patient was in the coccygo-dorsal position, when I found that this could only be achieved in a very unsatisfactory manner. The fistula seemed to me very hard of access, and I thought the peritoneum might easily be injured by the paring or sewing. I remarked at the time that under the influence of chloroform in very high coccygo-dorsal position, and by dividing the impeding cicatricial bands, access to the fistula must be strived at; that, however, under certain circumstances—i. e., supposing the fistula could not be properly exposed, no attempt at closing it should be made. But, as I have done in one case,* an obliteration of that part of the vault of the vagina including the os uteri in which the fistula was situated was indicated. In this manner, at all events, an injury of the peritoneum would be prevented. However, I abstained from further attempts at exposing the fistula, but left the patient to Dr. B. for operation, in order to see how he would achieve access to the fistula in the knee-elbow position. Dr. B. preparatorily, by means of incisions and subsequent tampons, dilated the cicatricial bands causing the stenosis. The lesions caused by the incisions were very small, and the band was readily stretched on inserting the tampon. After ten days the operation was performed, and I saw that the fistula could be well exposed in the knee-elbow position with Dr. B.'s speculum. But, nevertheless, access for the instruments was yet very difficult. The paring

* See minor communications of the Surgical Clinique of the Rostock Hospital, second division.

lasted more than two hours, and the fistula had to be extraordinarily enlarged, in order to be able to pare left angle (figure 11). The adaptation of the suture was attended with great difficulties, and it took two hours and one-half to apply five sutures. The whole operation, therefore, lasted four and one-half hours. During the after-treatment large doses of opium were administered, and a catheter en permanence was used. On the eighth day Dr. B. himself took out the sutures. The original fistula was closed, but right in front of the anterior lip of the womb an opening remained, through which (three weeks after the operation), when the patient left the hospital, the nail-phalanx of the index finger could be passed, and which therefore was as large as the original fistula. The state of the patient was in so far improved that the remaining fistula was far easier of access, and consequently more amenable to a cure (figure 12). On account of the exhausting and the equally weakening after-treatment, the patient felt so much worn out then that she would not make up her mind to another operation. Up to the present time she has not reappeared in Heidelberg.

CRITICAL EXAMINATION OF THE RESULTS OF THE OPERATIONS DESCRIBED.

If we wish to get at a correct opinion as to which of the two methods of operation was the most successful, we begin by eliminating my second case. The patient was suffering from pyelitis suppurativa calculosa at the time of the operation, and died on account of it. The post-mortem showed that the substance of both kidneys was almost entirely destroyed, and one of the ureters contained a stone. The patient would have died under these circumstances, which, before the operation, could not be diagnosed as to their full extent under any mode of operation, and the fistula would also have reöpened, as Dr. B. readily conceded.

Thus three cases are left for comparison on each side. *My results* were the following: In the first case a small fistula, from the size of a lentil to a pea, about the twenty-fifth part of the line of union had remained open. Three or four weeks after the operation of the second patient (Case III.), a little fistula, which

had remained after the operation, spontaneously closed up, and thereby a cure was effected. In the third patient (Case IV.) the fistula healed, with the exception of a small spot in the left angle, which lay outside of the suture.

Bozeman achieved a perfect cure in his first case. In his second the fistula reöpened throughout its entire length, and the patient became incurable. In his third patient four-fifths of the line of union healed.

My results, therefore, are absolutely, as well as relatively, better than Dr. B.'s, as we will see directly. For even if we do not ascribe the small fistula which remained in my fourth case to my negligence (as it ought to be), but ascribe it to the method itself, this would only have amounted to the twelfth or fifteenth part of the line of union. Under this acceptation there would, in my cases, be openings of one-twenty-fifth and one-twelfth to one-fifteenth of the line of union standing against a total failure and an opening of one-fifth of the line of union.

In order to attain a correct idea about the relative worth of the two methods, considering the small number of cases, their equalities also must be considered—i. e., we must see what kind of difficulties were opposed to the exact execution of each single operation, and after the completion of the operation, what difficulties were opposed to the healing process.

The execution of the operation can be impeded by such considerable difficulties in the exposure of the fistula that but an incomplete paring and union of the edges is possible. The large defect in my first case presented greater difficulties only in its remotest angles, which prolonged the operation, but did not prevent an exact execution of the same. In the third case cicatricial bands impeded the operation; these being divided, the impediment vanished. In my fourth case, also, paring and suture were very difficult, owing to the deep location of the fistula in a fold which was closely attached to the bone, which circumstance caused a small part in the left angle, not included in the suture, to remain open. But as the subsequent occlusion of the little fistula proved, I might have arrived at complete access.

In Dr. B.'s cases the two first fistulæ were very easy of

access, whereas the last was very difficult to get at. It lay in the left vaginal vault and so high up that I, on hasty examination, thought it possible that, from insufficient accessibility (and the proximity of the peritoneum), we would be compelled to perform obliteration of the vault of the vagina. But Boze-man, by gradual dilatation of the vagina and a very tedious operation of four and a half hours' duration, succeeded in exactly paring and sewing the fistula. Therefore, accessibility was so far established in the six cases that the main conditions of healing a fistula, *paring and suture*, could be executed to the fullest satisfaction of the operators.

Impediments for the healing of the pared edges are the following:

1. *Considerable Size of the Defect.*—In my first case the defect extended over the whole of the vesico-vaginal septum as far as the lateral vaults, and even into the urethro-vaginal septum. Of the latter, only $2\frac{3}{4}$ centimetres remained. The uterus could, indeed, be drawn down so far that the anterior lip of the os uteri touched the remnant of the urethra, yet the tension was considerable and the line of union very extensive. My other fistulæ were transverse slits of moderate size.

In Dr. B.'s cases the size of the fistulæ could not present any difficulty. The largest was of the moderate dimensions of half a centimetre in length and two centimetres in width (see his first case). Of the other two, one was the size of a lintel or a pea; the other just admitted the nail-phalanx of the index finger. (Cases II. and III.)

2. *Implication of the Urethra.*—Fistulæ which involve the urethra are more difficult to cure than fistulæ which are situated higher up, even if the latter present no difficulties in making them accessible. The septum urethro-vaginal is by far thinner than the septum vesico-vaginal, and we must economize when paring in order to preserve continence; whereas this motive does not exist in fistulæ situated higher than the urethra. The larger the loss of substance in the urethra is, the more difficult is the cure, because the thickness of the muscular coat, and consequently the thickness of the whole septum, decreases from the orificium-vesicale to the orificium-externum, and the danger of

incontinence increases at the same ratio. If the urethro-vaginal septum is three centimetres in length, which nearly or altogether equals its normal length, the prognosis is comparatively favorable; for this septum is but very little thinner than the vesico-vaginal septum, and broad strips of substance can be pared off for the purpose of making good edges without running the risk of incontinence. In case of a defect extending to $2\frac{1}{2}$ centimetres from the orificium-externum, the danger arises that on moderately extensive paring (about one-half to three-fourths of a centimetre) a cure will not take place, owing to the thinness of the edges, or that if it has taken place, continence is impaired. Thus it is that, generally speaking, fistulæ in the urethro-vaginal septum, or such as extend into the same, are much more difficult to cure than those further back (higher) in the vagina.

In all of my cases the urethra was implicated. In the first, $2\frac{3}{4}$ of a centimetre were left; in the third and fourth the fistulæ were located in deep transverse folds of the vagina, which were but 2 to $2\frac{1}{2}$ centimetres distant from the orifice of the urethra.

In Dr. B.'s cases the urethra was defective but once (see his second case). It measured $2\frac{1}{2}$ centimetres in length.

3. *Cicatricial Contractions and Adhesions of the Vagina Immediately at or Close to the Fistula Edges.*—In two of my cases (figures 3 and 4) these impediments existed; for in the third case there was a band-shaped contraction one-half a centimetre in width at the seat of the fistula. In Case IV. the vagina was narrowed to a small canal from the upper margin of the fistula to the mouth of the womb. If such masses of callous tissue are divided in order to make the fistula accessible, or to make its edges movable by means of the knife or the scissors, it is possible that on account of the reünion of these incisions a traction is brought to bear on the fistula which is capable of reöpening it as late as the sixth or seventh day. This is especially to be apprehended if very great tension is to be overcome during the act of knotting the sutures, and I myself witnessed this reöpening in a former case. Bozeman thought a cure very difficult in my two cases without preliminary treatment, and attempted to prepare the parts for my operations by means of gradual dilatation subsequent to dividing the contractions and

cicatrices. When these attempts had proved fruitless, I undertook the operation, trusting my paring and sutures to be war-rants enough against these unpropitious circumstances, the more so as the edges could be united without traction. I divided the cicatricial contractions and adhesions as far as they impeded the operation, united the pared edges, and achieved a cure.

Bozeman found only in his third case a narrow band-shaped contraction of the vagina, which he gradually overcome by dilatation, so that it offered no difficulty to the union of the edges.

4. *Proximity of the Ureter or Opening of it into the Fistula.*

—This circumstance seems to me no obstacle to a cure; but I here quote it because Dr. B. is of different opinion, and in his third case ascribes the remaining opening to this cause, supposing it to have originated from the ureter being caught in the suture (see below my remarks to Dr. B., article in the "New York Medical Record," July 25th). But even admitting this to be an impediment in Dr. B.'s case above described, it can not possibly have been the cause of the remaining fistula; for, as figure 12 shows, it is situated immediately in front of the mouth of the womb, and at least one centimetre distant from the ureter. The orifices of ureters in the bladder correspond to two points in the vagina about one centimetre each side of the os uteri and about one-fourth of a centimetre in front of it; therefore the ureter could more likely have been caught in the end of the suture which healed up than in that which remained open. However, as I have shown in my paper of 1868,* proximity of the ureter seems to offer no bad auspices for the cure of a fistula; for I have operated on quite a series of fistulæ which were located at or reached the point where the ureters are found; but I have neither observed a symptom which, with certainty, indicated occlusion of the ureter, nor have I very frequently seen openings appear at the points named. In these cases the ureter had either not been caught in the suture, or if caught, had not been

* Communications from the Rostock Surgical Clinique, Second Part. Leipzig, Hirshfeld.

closed; or thirdly, the thread had cut through the uretero-vesical wall so quickly as not to cause any protracted retention of urine. It is most likely that the ureter is either not caught at all, or only one of its walls, by the suture in these (mostly small) fistulæ, because it lies immediately under the mucous lining of the bladder, which, in small fistulæ, is rarely taken into the loop of thread. Where the ureter *evidently* opened into the edge of the fistula, I have taken the precaution *to remove its vesical orifice to a spot distant from the edge*, so that it could not be caught in the suture. If the ureter had not retracted from the edge of the fistula, I would have shortened it with the scissors and removed its cover, formed by the mucous lining of the bladder, or only cut out a part of the uretero-vesical parietes, so that the orifice could not be closed up by the suture.*

* For the operation of the very rare uretero-vaginal fistulæ a similar method of treatment might be applicable. Formerly, I had always spoken in favor of (see my article in Scanzoni's *Beiträgen*, vol. vi., 1860) an indirect cure for the treatment of the incontinentia urinæ, after I had repeatedly tried a direct one without success. These attempts had failed because I had cut the orifice of the ureter into the closed bladder too small, so that I was not successful in establishing a permanent opening of the ureter into the bladder. By means of the above-mentioned methods of operative treatment for vesico-uretero-vaginal fistulæ, and now since the bladder has been made accessible by means of the bloodless dilatation of the urethra, a direct treatment of uretero-vaginal fistulæ seems to me to offer a better show than heretofore. In my gynecological course I have been teaching for several years, that at the place of the fistula the wall of the bladder is to be cut through, thereupon a probe to be inserted into the ureter from this opening into the bladder, and using it as a director, the uretero-vesical parietes are to be split upon it to the extent of from 1 to 1½ centimetres upwards towards the kidney. The after-treatment would consist in daily inserting a thick probe into the slit until cicatrization had taken place. Afterwards, the vesical fistula which now lies distant from the new orifice of the ureter is to be pared and united in the direction of its longest diameter (which in both of my cases happened to be the transverse). It might not be bad to pare the parts of the vault of the vagina adjoining the edges of the fistula and use these as material for occlusion. This proposition seems to me to offer a safer way to attain the purpose than a late proposal made by Dr. Loudau (*Archiv. für Gynæcologie*, ix., 3). I will speak about these subjects more extensively in another place before long.

Addition to the American Edition by the Author.—Uretero-uterine fistulæ, for which heretofore neither an operation has been performed nor a proposal for its performance (see Scanzoni's *Beiträgen*, vi., Würzburg, 1860) offered to the profession, may probably be cured by splitting the portio-vaginalis up to

5 and 6. Finally, I have achieved my results under two circumstances, which are, in the eyes of Dr. B. and many others, especially American colleagues, considered great obstacles to a cure (but I confess not in mine), and therefore must considerably increase the value of my results in their estimation; for I achieved my cures not with metallic but with silk threads, and applied no catheter en permanence, but *allowed the patients to urinate at their free will*. I have employed sutures of Chinese (a very tightly-twisted material), and of this for most of the sutures, not the finest kind, but such of No. 1, which is thicker than a double thread of No. 0, that I formerly frequently used, but have now abandoned on account of its weakness, and I now only employ it in case of very thin edges for the purpose of auxiliary superficial sutures.* The sutures were fastened simply by knotting. Concerning the after-treatment, I never take the slightest precautionary measures to keep the urine away from the wound; nor against tearing while the bladder is filling or discharging. The patients were allowed to urinate when they pleased, and Dr. Bozeman saw them walk into the operating hall and climb on the table, four or five days after the operation, in order to have the threads taken out.

Dr. Bozeman used the wire suture, which he fastened on a pierced plate with pierced shot (his so-called suture apparatus) in his cases. He claimed for it not only the advantages of metallic sutures, but also a better fastening of the sutures, which, in my method, consists in simple knotting of silk threads (which is equal to Sims' twisting-of-wire suture).

Dr. Bozeman applied an elastic catheter-à-demeure to the bladder, which he rinsed out several times a day, and gave large doses of opium. He puts such value on this after-treatment that he intimates (in his article in the "New York Medical Record"), that the result in his second case was so unfavorable because he had not been able to carry out the after-treatment exactly to his wishes. Actually he visited the pa-

and even above the insertion of the vaginal vault, as Jobert has first done for vesico-uterine fistula. In this way the orifice of the fistula in the canalis cervicalis may be exposed and cured either by bloody suture or cauterization.

* Explanatory note of the Translator.

tients from three to four times a day himself, and my assistants, on his wish, paid attention to them at night. As stated above in the history of Case II. of Dr. B., I afterwards closed up that fistula under circumstances much less favorable, and *without any after-treatment* whatever. * * * *

The above can be condensed in the following words :

To the exact execution of the operation, in all six cases, only B.'s third offered serious difficulties as far as access is concerned, and these were eventually overcome.

Further, we have seen that the operation being completed, in my cases, with the exception of Case I, where a little fistula remained, union of the edges took place, notwithstanding many real difficulties, or such as were considered so by Bozeman. On the other hand, B. had only one case (number 2) in which, by implication of the urethra in the defect, the cure was difficult. In this case reöpening of the edges ensued, which rendered the case incurable.

Therefore it remains to inquire :

(1). Whether access to the fistula in B.'s third case could have been reached by my method also, or whether his method of exposing fistulæ has an advantage over my coccygo-dorsal position.

(2). Whether my paring and suture, to which the favorable results can only be ascribed, are better than the same acts in B.'s method, and whether the very unfortunate result in B.'s second case was merely accidental or must be ascribed to the method.

Concerning the first question, I indeed thought that in B.'s first operation the exposure of the fistula in the knee elbow position and through his speculum succeeded better than in the coccygo-dorsal position and by my instruments. After B.'s exposure the fistula could easily be seen during the whole of the operation, and if not the operating itself, yet the effect of every cut and of each suture could be followed (controlled).* In this first case the paring of the fistula was completed with one single onset of the scissors and the knife, very substantial edges in

* During the execution of both acts the hands of the operator darken the field of operation.

healthy tissue were formed, and the whole operation completed in one-half hour, notwithstanding the very complicated suture. The result of the operation was a complete cure. Remarkable in the performance of this operation, to me, was the extremely broad excision (paring) of the edges, amounting to one centimetre in width. At the same time I found it injudicious that the larger part of the fistula was pared with the scissors, yet in the face of the result this scruple had to vanish. The whole operation impressed me favorably, though the fistula was, comparatively speaking, easy to cure. I confessed to myself, that if in difficult cases operations could be performed with the same certainty, celerity and equally good results, B.'s method deserved to be preferred to my own, especially in fistulæ situated high up in the vagina, which can not be dislocated towards the introitus-vaginæ. I thought the method might be advantageous, because these cases sometimes offer greater difficulties to the operation with the knife in the coccygo-dorsal position, but the results of the two following operations convinced me of my error :

In the second, executed in presence of our colleague Kœberlé,* the fistula was only situated $2\frac{1}{2}$ centimetres from the orifice of the urethra. After the patient was fastened in the knee-elbow position and chloroformed, the operation was carried out with great rapidity and dexterity (thirty-five minutes); all the spectators as well as myself admired Dr. B.'s skill (virtuosoship) (?). But here also I was struck by Dr. B.'s extensive excision of the edges, and that, as in the first operation, he used the scissors in preference to the knife. The anterior margin of the fistula was situated in the urethra, which only measured $2\frac{1}{2}$ centimetres in length, so that a very slight paring was indicated in order that continence of urine be retained; nevertheless, Dr. B. cut off about one centimetre of the edges, so that but $1\frac{1}{2}$ centimetre of the urethra remained, and thereby risked incontinence in case of a failure. But the edges fitted closely upon one another; they

* During this operation it is likely that I made the remark which Dr. B. quotes in his article in the New York Medical Record (see "remarks to this article" below), referring thereby to B.'s first case, for Dr. Kœberlé was not in Heidelberg at a later period.

were situated in perfectly healthy substance, and could be easily united in spite of the tension on them. If a cure with continence had followed, nothing could have been said against this operation either. But the whole fistula reöpened and the patient became incurable.

In the third case the fistula was very difficult of access, being situated in the left vaginal vault. After the exploration in the coccygo-dorsal position, in which I did not make use of any auxiliary instruments for this purpose, excepting Sims' duck-bill speculum, not even using chloroform, its edges seemed to be attached to the bone; and as above remarked, I expressed the opinion that in this case, on account of the inaccessibility of the edges and of the proximity of the peritoneum, an oblique obliteration of the left vaginal vault might be indicated. Dr. Bozeman cut a cicatricial band which narrowed the vagina exterior to fistula, gradually enlarged the same by tamponade, and ten days afterwards carried out the operation. The fistula was clearly brought to sight by means of the speculum, and I was able to convince myself that my first thought after superficial exploration, that the fistula was attached to the bone with the greater part of its edges, was wrong. On the contrary, only the extreme corner of it was adherent, and therefore much easier of access than I believed. I thought that in this case also the operation would be carried out as quickly as in the former cases; but the fistula was, in spite of easy exposure to the eye, so difficult of access to the instruments that it took Dr. B. four and a half hours, a time now-a-days unheard of, to complete the operation, though the defect was small. In order to pare the edges exactly, he had to so enlarge the fistula that its inner angle extended past the left of the anterior lip of the uterus (see figure 12). At the end of the operation the edges were very broad and situated in exceedingly sound substance, and during the application of the suture apparatus no tension was felt. In this case I was likewise struck by the extensive paring in so immediate proximity to the peritoneum, and the broad excisions extending to parts $2\frac{1}{2}$ to 3 centimetres from the fistula. Therefore I feared a peritonitis, as I remarked to Dr. B., without ever doubting that a union would properly take place. Yet in this

case neglecting the proximity of the peritoneum was followed by no evil consequences. Peritonitis did not make its appearance; yet, on the other hand, the fistula did not heal in its totality, as I had predicted, but an opening remained before the os uteri, through which the nail-phalanx of the index finger could be introduced.

After these operations I understood that my former supposition, namely, that accessibility in the knee-elbow position and by means of Dr. B.'s speculum, could better be obtained than by the coccygo-dorsal position and my instruments, was an illusion. True it is that, in Dr. B.'s method throughout the operation, the fistula can well be seen, but the instruments are so difficult to handle that Dr. B. must in all cases, even where the fistulæ are easy to expose (Case II), make use of the scissors, and always excise large portions of marginal substance while paring. These disadvantages, which will be treated of more thoroughly below, are not inherent to my method, and I therefore hold the opinion, that in general it is preferable to Bozeman's.

In answering the question above proposed, whether in Dr. B.'s third case the fistula, which was very difficult of access, could have been exposed and approached by my method, I was impressed during the operation that with such protracted efforts as were necessary for Dr. B. to perform paring and union, I could also have succeeded in the coccygo-dorsal position in paring and sewing the edges, and even paring with the knife, though I had heretofore doubted the possibility. By division of the impeding cicatricial band and dilatation of the vagina under the influence of chloroform, access would very probably have been reached; yet even then it would have remained doubtful with me if obliteration of the left vaginal vault, in order to avoid injuring the peritoneum, were not preferable. I would have only united the edges in case I could have perfectly controlled each cut of the knife and carried out continued narrow paring, as indeed by such proceeding lesion to the peritoneum is much less possible than under Dr. B.'s broad excision. True, the peritoneum was not hurt in this case, either because the lateral cul-de-sac of Douglas was broadly obliterated or because it did not reach the field of operation on account

of individual peculiarity; but that danger exists, and that it is advisable to look out for it, can not well be denied. Dr. B. himself has seen in his fourth case, in Vienna, during his preliminary operation, that a prolapsus of the fallopian tube occurred through a fold of the peritoneum opened by himself, though there were callous cicatricial contractions of the vagina in its immediate proximity, which made it probable that similar ones existed in Douglas' sac.

In these fistulas situated in the lateral vault, and so very difficult of access, happily of rare occurrence, it is left optional with the operator whether he will, as Dr. Bozeman did, close up the fistula or perform obliteration of the vault, including the os uteri. In the first case, the patient is exposed to the danger of losing her life; in the second case she remains sterile, but the operation is harmless.* Were it possible in these cases to obliterate the vaginal vault without including the os uteri, then the operation would avoid the unfavorable points of either of them. I have never performed this obliteration myself, but I do not believe that its execution would meet with very great difficulties.

* The oblique or transverse obliteration of the vaginal vault can be performed without fear of lesion to the peritoneum. True, Douglas' cul-de-sac extends over the posterior side of the vault, but it is separated from the latter by the thick mucous membrane of the vagina and a rather strong stratum of connective tissue. On superficial paring and employing sutures which do not pierce or perfectly embrace the whole wall of the vagina, the peritoneum can not be injured, provided the mucous membrane is not attenuated by a cicatrizing process and the peritoneum thereby attached to it. These latter are rather to be expected close to the fistula than lower down, where occlusion is to be performed. I have carried out the obliteration of both vaults together immediately in front of the os uteri in two cases, and in one case oblique obliteration, but have never observed peritonitis, not even a peritoneal irritation. How little a lesion of the peritoneum after superficial paring is to be feared, becomes obvious also by the results of another operation, viz., colporaphia posterior, which I have invented for the cure of prolapsus uteri (see my *Mittheilungen aus der Chirurg. Klinik in Rostock*). Here the upper part of the pared surfaces is situated right over Douglas' cul-de-sac, only separated from the same by the mucous membrane and a layer of connective tissue. But neither myself nor any other operator has seen a lesion of the peritoneum, though the operation has been performed in more than one hundred cases.

We now approach the second question : Why were the results of my paring and suture absolutely and relatively far better than Dr. B.'s, and are they to be ascribed to chance only, or to the method itself?

To me they seem to rest on the method.

Dr. B.'s paring is done in the following way : He takes hold of the anterior edge of the fistula with a tenaculum, pierces the same with a knife, and cuts in a transversal direction towards both angles ; thereupon he takes hold of the loosened edge with a tenaculum and exerts traction on it in such a manner as to give the fistula a more vertical (antero-posterior) direction. Now he excises the posterior edge of the fistula from the right angle to the left with uninterrupted *cuts with the scissors*. The marginal parts were cut away so broadly in his first two cases that no secondary paring needed to be resorted to. In the third case, in which the fistula was very unfavorably situated, Dr. B. cut away still larger pieces, in order to be able to get at the extreme angle of the original defect. The edges were almost exclusively pared by the scissors in this case (figure 11). Dr. B. practiced broad excision even in those cases in which the fistula extended into the urethra, or was situated close to the peritoneum. I, on the contrary, after dilatation of the vagina, attempt to dislocate the fistula nearer to the introitus vaginæ (by means of sharp, single and double tenacula, and by means of loops carried through the lips of the os uteri); then I take hold of the edges of the fistula, which, in the coccygo-dorsal position, lies directly in front of me, by means of a fine tenaculum or forceps, and if sufficient substance is at my disposal I excise the edges with a few *cuts of the knife* in a slightly obtuse angle ; but in all cases where tissue must be spared, I successively cut off thin layers of substance.

Let us compare these methods of paring : To begin with, I do not consider the *scissors* as good an instrument for the purpose as the *knife*. Indeed, in deep cavities the operation with the former is easier to perform than with the latter ; but there can be no doubt that even the sharpest scissors bruise the edges to some extent, and therefore are not as good for a *prima intentio* as those cut with the knife. In plastic operations, scis-

sors are only resorted to where the knife can not be brought into use. I have convinced myself of the advantages of the knife in my numerous plastic operations, especially in cases of broad hare-lip and staphyloraphia,* in which the scissors were formerly made use of; and, indeed, I do not know of any German surgeon who, for the operation of hare-lip, staphyloraphia, vesico-vaginal fistula, or rupture of the perineum, uses the scissors by choice.

In the operation of vesico-vaginal fistula, in which a complete *prima intentio* is far more necessary on account of the disagreeable consequences of even the smallest part remaining open than in any other plastic operation, the scissors certainly would seem to be less suitable than the knife. Dr. B.'s total failure in his second, and the incomplete result in his third case, might be extensively, indeed, perhaps, totally ascribed to his *paring with scissors*. The edges were in both cases as substantial and as broad as the circumstances admitted, for they involved the whole thickness of the vesico-vaginal and urethro-vaginal septum; they were located in healthy tissue most favorable for *prima intentio*; the traction on uniting the edges was easy to overcome, and after the operation no untoward circumstances happened which might have interfered with a speedy cure. If these edges had been cut with a knife, according to my experience, a cure would have been the result, even though

* Twenty years ago I operated on hare-lip, as I was taught, with sharp scissors and the clamp; but I could only count on a good result where the lips were well formed, which is the case in the fourth, fifth, or sixth month after birth, and even then only when the defect was not too broad. My attempts at closing up hare-lips during the first month, i. e., while the lips are very thin, were generally useless, even in very simple cases. I therefore took to the knife, and now-a-days I operate at the earliest period, namely, from the first day after birth, even complicated double hare-lips, and I can say that but very rarely the defect reopens, notwithstanding I never take the slightest precautionary measures for preventing traction, nor do I ever apply a strip of sticking-plaster. In children of six, five, and even four months of age, I have often operated complicated and broad hare-lips without keeping them under after-treatment, but simply sent them home and had them brought for the necessary after-acts. Even under this treatment the most satisfactory results were gained (compare Rostock Mittheil., ii., p. 13). My results in staphyloraphia also became more certain when I had exchanged the scissors for the knife, as just now stated, in cases of hare-lip.

the pared surfaces were not brought into exact apposition by the suture.

Only in those very rare cases in which the fistula is of very difficult access for the knife, the scissors might be preferred, because, under such circumstances, paring can be carried out more exactly than by the latter.

Addition to this Translation by the Author.—This view might be opposed by the fact that many hundreds of fistulæ have been operated upon and cured, especially by American colleagues, by means of the scissors. This fact, however, only proves that the vesico-vaginal septum offers far better conditions for a *prima intentio* than thin lips of children or edges of a cleft palate. If, therefore, (I do not mean to contradict) in a large majority of cases of vesico-vaginal fistulæ, paring with the scissors furnishes as good results as the same act performed with the knife, I am, nevertheless, of the opinion that the certainty of good results is increased by the latter method, which is especially to be borne in mind in such cases where the edges are thin and their substance must be economized.

A second and perhaps a still greater disadvantage of Dr. B.'s paring is, *that very large pieces of the edges must be cut off* in order to be sure that the margins are situated in perfectly healthy tissues. In the knee-elbow position, and on exposure by Dr. B.'s speculum, the fistula is not moved forward, but even pushed back, and though naturally situated near the introitus vaginæ, is removed pretty far from the vulva. The fistula thereby becomes more difficult of access for the instruments, the field of operation is darkened by the hands of the operator, and the paring can not be so easily controlled, as is necessary under certain circumstances, during that act. Bozeman, therefore, inserts his knife three-quarters to one and a quarter centimetre from the anterior edge of the fistula into the tissues, and cuts equally broad parts all around the fistula, in order to be sure to have the fresh margins in perfectly normal tissues. No objection can be made against this broad paring* as long as

* I make a distinction between broad and narrow *paring* and between broad and narrow *excision* (or *ablation*). By the first, only the breadth of the fresh surface is meant; in the latter, the width of the piece cut out is taken into consideration.

there is abundant tissue which can be wasted without harm. In all small and middle-sized fistulæ, and even in a number of larger defects where there is no strict contra-indication, broad paring is justified; and I have ever been a defender of it, though I did not pare as broadly as Bozeman. Such fancy paring is even commendable for inexperienced operators, because thereby the edges are sure to be located in normal tissues. On the other hand, if we have to do with a fistula in which saving of the substance is law, unnecessarily broad excision may be conducive to the most serious consequences.

Under this category are to be counted all those fistulæ which extend into the urethro-vaginal septum; further defects whose edges, after protracted or unsuccessfully practiced preliminary treatment, have not become sufficiently movable to be brought in apposition without considerable traction; and, finally, those cases which are situated in the lateral or posterior part of the vaginal vault. In those in which the urethra is implicated, incontinence may be caused by too extensive paring. In larger fistulæ, where the edges are very immovable, the defect becomes larger, and thereby traction is increased; and, thirdly, the peritoneum may be injured in fistulæ situated in the lateral vaults. In these cases *gradual ablation* of the edges is the mode of paring which answers best under the circumstances. Thin layers of the margin are successively cut away until the edges are situated in perfectly normal tissues. In this way every bit of fancy excision is avoided.

This *gradual ablation* is far easier to perform with a knife than with the scissors, and is in my method rendered a great deal easier, as by antero-dislocation of the fistula and retraction of the posterior wall of the vulva and vagina the way to the fistula is much shortened. It can be done with the greatest ease in defects in which the urethra is implicated, and in which this kind of ablation is especially indicated. Vesico-urethro-vaginal fistulæ can be excellently exposed in the coccygo-dorsal position, and usually can be dislocated as far as the introitus vaginæ, frequently even still further forwards, so that the operation is almost performed as if on the surface of the body. In Dr. B.'s exposition parts of the edge one minim in width,

which it may sometimes be essential to remove, can not be taken from the anterior edge with the knife, and still less from the posterior edge, where he uses the scissors. At any rate, Dr. B. cut away so much from the edges that but $1\frac{1}{2}$ centimetre of the urethra, which, before the operation, measured $2\frac{1}{2}$, were left. So extensive an excision, which had the above-mentioned evil consequences, was, however, perfectly uncalled for, as the edge of the urethra in question, which had just been operated on, was only covered by a thin cicatrix, and could not possibly have undergone cicatricial change to any great extent. The subsequent cure of the same (only enlarged fistula) by means of paring, which took away but a minimal part of the urethra, furnishes, as I think, the unmistakable proof of Dr. B.'s fancy excision. In this case, as above related, I operated twice more. The urethra itself lost but one and a half to two minims in each operation, since I pared very superficially. In my third and fourth cases the fistulæ were situated in deep grooves at the place of juncture between the urethro-vaginal and vesico-vaginal septum, and its anterior edge was only two centimetres from the orifice of the urethra. Here also I saved substance by superficially paring the borders of the groove and excising but minimal parts of the fistula margin throughout its thickness. Dr. B., who was present at the operation, remarked that in these cases he would pare much more extensively. But had I done so, larger parts of the urethra would have been lost, and even in case of union incontinence was to be feared.

Other disadvantages of B.'s method seem to be founded on the fact that, on account of the transverse tension given the vagina by his speculum, the edges must always be united in a transverse direction, thereby excluding all other kinds of plastic not based on stretching the edges. In transversal, round, and even long oval fistulæ, transverse union may be practiced with advantage. Longitudinal fistulæ, whose longest diameter exceeds their transverse diameter by only one centimetre, can not be transversely united without the excision of large parts of substance which might have been saved. The line of union is thereby much lengthened and the tension increased. This drawback increases directly with the longitudinal diameter. I

always unite in the direction of the longest diameter of the fistula—viz., in transverse, longitudinal or oblique direction, and I think this to be the most rational. In triangular longitudinal fistulæ, whose basis was turned to the urethra and apex towards the os uteri, and in cases of large, square defects, I have united in T-and-Λ shape, and achieved cures which, had I adhered to transverse suture, would have been very questionable (see my Rostock Mittheilungen). Besides, in cases which were therefore deemed incurable, I have several times successfully used bridge flaps for covering the defects, and in two cases I made use of petiolated flaps taken from the surrounding parts, and healed them into the fistula.

These latter operations might, on account of the deep location of the fistula in the knee-elbow position, be combined with the utmost difficulties—yes, indeed, almost impossible. Should one attempt to make a transplantation in B.'s position (with his speculum, etc.,) the knife would have to be used, and at all events B.'s suture be abandoned.

Besides his paring, B.'s suture might also have contributed to his unfavorable results, though this acceptance seems to me unlikely, because so far as I could judge the fistulæ seemed well closed up. Yet B.'s suture has, besides the difficulties of its adaptation, several disadvantages, which I will now mention in a few words. B. thinks that his button-suture is superior to the interrupted silk or wire-suture, so far as exact adaptation of the edges is concerned; but anybody having seen his suture will hardly be of his opinion. I admit that by it the edges can well be kept together, but exact control of the union is not as safe as in the interrupted suture, where no plate hides the threads during the moment of their fastening. Besides, B. uses very thick wires, and places them comparatively far apart (one centimetre), and by means of these he draws the edges up against the leaden button. I am of opinion that finer threads put closer together, as in my suture, produce better union. For relaxation of the tissues, as well as union of the edges, is thereby effected from many more points, so that the former is brought about more uniformly, and the latter as closely as possible. By means of sutures, which are here further from, there closer to

the edges, and according to necessity are superficial or deep in the tissues, each postulate of a good union is answered to the fullest extent.*

Finally, if Boz. thinks that his thick wires are less liable to cut into the tissues, and for that reason give rise to fewer suture holes than more numerous fine threads tied immediately on the edges, this position also seems to me to be built on sand; for if fine threads cut through, the tissues generally reünite immediately behind the thread, and in case a little fistula remains, it heals by cicatrization and without the help of art. Thick threads, it is true, are less liable to cut the tissues than fine ones, but if they do so, the danger of permanent fistulæ is evidently greater. I also can not admit that fastening the sutures, without knotting, simply by pressing them up against a pierced lead button, is less conducive to cutting, because the tissues are as firmly compressed as when included in a knot, or on twisting the metallic wires, after Sims. If we consider that not rarely spasmodic contractions of the bladder act upon the united edges which are immovably fixed to the unyielding button, the weight of which constantly exerts traction on the suture, it is much more likely that B.'s suture can be damaged by tension, and thereby favor the cutting of the wires than the above compared simpler sutures.

In Dr. B.'s cases I have indeed been able to follow the suture incisions into the reöpened fistula, notwithstanding the wire had been carried through the borders far from the edge. Bandl also remarked that, in Dr. B.'s fourth case which he operated on in Vienna, it was high time to take out the sutures. For, although on the eighth day the cure was completed so that no more traction could take place on the edges, the suture had almost entirely cut through the tissues.

After the above investigations, the second question must be answered in the following manner: *My paring and suture are, from the different above-mentioned reasons, to be preferred to the same acts in Dr. Bozeman's operation, and that the failure in his second case must be ascribed to the method itself and not to accident.*

* See my Mittheilungen aus der Chirurgischen Clinique in Rostock, etc.

REMARKS ON DR. BOZEMAN'S FISTULA OPERATIONS IN VIENNA.

To the above discussions of the fistulæ operated on in Heidelberg, I take the liberty to add a few remarks on Dr. B.'s fistula operations in Vienna, which Dr. Bandl has very clearly described.* In Vienna Dr. B. had better results than in Heidelberg, for of four fistulæ he completely cured three, and in one only a very fine opening remained. These fistulæ prove to be merely such as any expert can cure, whether he operates in the knee-elbow, the side, or the coccygo-dorsal position. The cases were, in my opinion, comparatively favorable.† The fistulæ were located in the median line of the vagina and in the fundus of the bladder, where they are easiest of access, and where a cure is most likely to take place. In all of them there was enough substance, even for broad paring, and after dilatation of the contracted vagina, which was found necessary in three cases, the edges could be united without much tension. The urethra was intact in all cases; two defects (figures 2 and 4) extended towards it, so that it was involved in the paring, but only small parts of it were taken off. Even in the largest defect (Case II) the prognosis was not at all unfavorable. From its posterior edge to the uterus there were still two centimetres of the vesico-vaginal septum left, and the distance from the exterior orifice of the urethra to the anterior margin of the fistula was $3\frac{1}{2}$ centimetres. Broad excision could therefore be resorted to, not only in the posterior but also in the anterior edge. Indeed, such good edges could be produced, and their adaptation could be so exactly carried out, that I was astonished at Dr. Bozeman's remark: "He would be satisfied if only five sutures would hold." For under similar circumstances I would with my paring and suture expect a perfect cure.

* Dr. Bozeman's method of operation for vesico-vaginal fistula, etc., Wiener Medizinische Wochenschrift, 1875, No. 49, 52.—*Bandl*.

† Such they were, especially when compared to the fistulæ operated on in Heidelberg, of which only one was favorable, viz., Dr. Bozeman's first case. In Heidelberg we generally treat but very difficult cases. Most of our patients come from a great distance, and have either been operated on by others, sometimes by skillful operators without success, or the operation was never undertaken, being thought too difficult to cure.

Dr. Bandl, the reporter, lays special stress on the fact that three of the fistulæ were very inaccessible on account of contraction of the vagina, and that he could not expose them with my modified Sims' speculum. According to common usage, therefore, transverse or oblique obliteration of the vagina would have been indicated; but that Dr. B., by means of his preparatory measures, had been able to accomplish a cure of the fistulæ by uniting their edges, I do not pretend to be able to give a perfectly correct judgment, as I have not seen or examined the cases myself, but I believe that I may be allowed to claim that Dr. Bandl's first examination with the speculum only, and without any other instrument for the exposure of the fistula, without chloroform narcosis, and without dividing the impeding contractions, is no proof of the inaccessibility of the fistulæ in question. From the description of the existing relations, I would probably not have deemed any preliminary treatment necessary in the first and fourth cases, and in the second case I would have resorted to repeated tractions on the womb, and perhaps divided one or the other of the cicatricial bands. I should most likely have omitted the gradual preparation, because only one thick cicatricial band narrowed the vagina and rendered the posterior edge of the fistula immovable.

For the purpose of exposing the fistula, I would probably have divided the impeding contractions and adhesions with the knife, thereupon expanded the vagina by means of my specula, and completed the operation either with or without dislocating the parts surrounding the fistula. Whether the result would have been favorable must naturally remain undecided, though it may be considered very probable; for in the third and fourth of the above-described cases I have overcome similar, perhaps larger difficulties, although Dr. B. thought a gradual preliminary treatment necessary, and indeed had begun the same, but in vain.

Up to the present time I had almost entirely practiced *rapid preparation*, and but rarely thought a *gradual preparatory treatment* necessary. I divide the contractions of the vagina which make the fistula immovable immediately before the operation of the fistula with the knife, and generally cut them at

different places. In the lateral parts and the anterior wall of the vagina, I make deep incisions, if necessary; in the posterior wall, where the peritoneum might be injured, I make but shallow scarifications. Thereupon I distend the vagina by introducing a set of grooved and flat specula increasing in size, practicing scarifications at such places where I find dilatation prevented by cicatricial tissue. By exerting traction on the lips of the os uteri and on the posterior edge of the fistula, I attempt to make the parts movable, and draw them forwards and outwards, so long as this can be done without exerting great power. Tenacula are then used to bring the parts still more into view. Often it is perfectly astonishing to see how quickly fistulæ which were scarcely visible can be made so easily accessible that they can be operated on without any difficulty. I believe I have achieved as much by rapid preparation as has ever been done by gradual dilatation. As becomes evident from my third and fourth cases, it can be effectually practiced under circumstances where gradual preparation must be abandoned.

Rapid dilatation is frequently more difficult than gradual enlargement, and sometimes requires a good deal of experience, so that unpracticed operators do not often succeed with it, but it has various advantages over the other method. It not only shortens the time of treatment by weeks and months, but is also much less dangerous. On gradual dilatation, where the incisions into the cicatrices are distended by force for several hours each day, the pus and urine, which rapidly undergo decomposition, are kept in the vagina in contact with the open sores. Colpitis, cystitis, and if the connective tissue surrounding the pelvic organs be exposed, suppuration and sloughing of the same, parametritis, even pelveo-peritonitis, may arise and put the patient's life in danger. On rapid preparation, immediately followed by the closing of the fistula, the vagina is not kept extended for any length of time by a tampon, matter flows off directly, and urine does not stagnate nor undergo decomposition in the vagina. In my treatment I have, comparatively, very frequently practiced rapid dilatation; but I remember no case followed by so heavy symptoms of reaction as Nos. 3 and 4 of the Heidelberg cases, in which Dr. B., and a

third case a few weeks later in which I, with Dr. Markwald, (Berlin) attempted gradual dilatation. For the more experienced, therefore, I consider rapid dilatation indicated whereas exceptionally gradual dilatation may be of use. Should the posterior edge of the fistula be very closely attached, tractions on it and the os uteri would precede rapid dilatation. Under all circumstances it is very advantageous to expose and examine the fistula several times previous to operating on it, in order to become acquainted with the most suitable instruments and manipulations to be used, and also to the impediments opposing its exposure. On all difficulties of exposure the less practiced had better resort to gradual dilatation, and to relinquish it only when in spite of the greatest circumspection the patient can not bear it. If after the cure the rapidly dilated vagina should contract, gradual dilatation may now be undertaken with lessened danger.

That Dr. B., as the reporter repeatedly urges, *strives to obviate transverse obliteration wherever possible*, is decidedly a correct principle, and gradual dilatation might with the unpracticed in the future greatly diminish the number of transverse obliterations.* Nevertheless, this operation, the priority of whose discovery Dr. B. formerly disputed, but which he now concedes to me, will never be forsaken in such cases where the edges of the fistula can not be united after a long-continued preparatory treatment was fruitless, or not sustained by the patient. If in such cases transplantation from the surrounding parts can not be carried out, nothing remains but transverse obliteration of the vagina. In the summer in which I expected Dr. B. in Heidelberg, transverse obliteration of the vagina had to be carried out in the patient whom I treated together with Dr. Markwald. The loss of substance extended in this case

* Within the last years I treated two Russians, in which transverse obliteration had been carried out by two German colleagues. The patients, not satisfied with their state, traveled to Heidelberg, when I discovered after bloodless dilatation of the urethra, and by palpation of the bladder, that both fistulæ were comparatively small. I therefore opened the artificial atresia, severed the narrowing cicatricial bands and cured the fistulæ. The former operators seem neither to have tried gradual nor rapid dilatation of the vagina.

from one centimetre forwards of the os uteri to two centimetres from the orifice of the urethra. The vagina was so narrow that it admitted only one finger, and all the parts surrounding the fistula, with the exception of its anterior edge, were so firmly attached to their neighborhood as to make them perfectly immovable. The fact that its lateral edges were but two-thirds of a minim in width, callous, and attached to the bone, was especially unfavorable. Now, although convinced that even if, after dilatation of the vagina, the middle part of the posterior edge was rendered movable, and the lateral parts of the fistula were found to remain open, I still wished to try whether by gradual preparation circumstances could not be so much bettered as to allow of a transplantation. I severed the strictures and used nothing but *soft* tampons; but from the fifth day pelveo-peritonitis developed to such a degree that recovery remained doubtful for a long time. It took ten weeks for the patient to recover before transverse obliteration, now indicated, could be performed. Occlusion was gained. Continence is only complete in the horizontal position; when standing or walking nearly all the urine flows off, because the remains of the urethra, only two centimetres long, had to be shortened in the operation. Nevertheless, her present state is a great gain for the patient. In such and similar cases, transverse obliteration must be performed, and if there be one-fourth or one-half-centimetre of the urethra left, complete continence will be the result. Then the operation will be what Dr. B. called it in 1868: "An important operation," because by it the patients become liberated from the most terrible symptom of their suffering, viz., incontinence.*

In his article in the "New York Medical Record," Dr. B., in order to show to what extent transverse obliteration should be shunned, has stated that pyelitis suppurativa is the consequence of this operation, and has cited my second case as new proof for his view. I do not know on how many observations Dr. B. bases his view, but I can oppose the fact that I have seen at least ten patients in which transverse obliteration has been performed, who, ten years afterwards, enjoyed most bloom-

* See my article, Historical Remarks, etc. (Deutsche Klinik, 1868).

ing health. To be sure, I did also witness several cases that died from pyelitis suppurativa, either with or without formation of calculi. But in this case transverse obliteration was not the reason, but contractions and deformation of the ureter, which were caused by cicatrization of lesions produced during delivery. Generally, symptoms of pyelitis had existed previous to kolpoplekthis.

In my second case, also, both ureters were much contracted near their insertion into the bladder. Indeed, I know of no reason why transverse obliteration of the vagina, after which the urine does not stagnate *any more* in the bladder than normally, should produce pyelitis suppurativa.

Dr. Bandl extols as an advantage of Dr. B.'s operation, that it is performed *in situ of the parts involved*. But I do not know wherein this advantage consists; for it is perfectly equivalent for the cure whether the parts remain in situ during the operation, or are only brought there after the operation, as in my method. Operating in situ and with Dr. B.'s mode of exposure, the operation can only be exactly performed with the scissors. If artificial antero-dislocation of the parts involved can be practiced, the knife can be used and the operation done with such a degree of exactness as can not be reached by the other method; therefore, in all cases where my exposure can be employed, I consider my method absolutely better than Dr. B.'s, and only in such cases where the fistula is situated high up and can not be dislocated, the question might arise whether in a given case the one or the other of the methods deserves preference. It is remarkable that many operators, yes, even followers of my method, have entirely overlooked or not sufficiently valued the advantage of artificial descensus (antero-dislocation).

Ullrich, in Vienna, for instance, has invented an apparatus to fasten the fistula during the operation, which, as every apparatus of the kind, must render dislocation forwards, i. e., to the surface, impossible. Such an apparatus could only be used to advantage in my method in case of an immovable fistula when dislocation is impossible.

I must also recur to the question of catching the ureter in the suture. Bozeman makes this circumstance answerable for

the small fistula remaining after his second operation in Vienna. The history of the case, however, states that the visible orifice of the ureter was split to the extent of one centimetre in an outward direction, and it is therefore difficult to understand how the second last and not the last (most outward) suture which corresponded to the remaining fistular opening should have compressed the lumen of the ureter.

To me the reason for the remaining small fistula seems also to be based on other moments. If Dr. B.'s supposition was correct, that in Heidelberg and Vienna, as well as formerly in Paris,* the ureter had been caught in the suture, and that thereby the little remaining fistulæ had been produced, we would have to conclude that his suture apparatus was especially unfavorable; for, as above stated, this occurrence has never been found an obstacle to a cure by me, nor by other operators.

I was astonished that the reporter considered the result of Case II equal to a cure, though the worst spot had remained open; for, according to Dr. B.'s, as well as Dr. Bandl's view, the remaining little opening was a vesico-urethro-vaginal fistula. Now, as Dr. B., in the operation of the large defect, could not avoid the visible ureter, it must be anticipated that he will still be less able to do this at the operation of the small fistulæ, at which the ureter will, of course, be much less visible, perhaps not seen at all.

I have spoken at such length about Dr. B.'s method of operation, because by far the greater number of fistulæ can be cured by it, so that it can not be excluded from competing with the two methods in general use, viz., Sims-Emmet's and my own.† But it will never become very popular, because, in a number of

* See below, Critical Remarks on Dr. B.'s article in the New York Medical Record.

† These three methods are especially distinguished by the different positions, the mode of exposing the fistula with its consequences in regard to the facility and certainty of the operation. Preparatory treatment and after-treatment, however, are independent of the method. The material of the suture, whether metallic wire or fine silk thread, does not involve a material difference. In a future article I will compare each single act of the three methods, but especially, however, Sims' method and my own, and explain their differences at some length.

cases, the two latter methods do the same, and in some cases even more in a simpler way, and with less costly instrumental apparatus. Bozeman's proceeding is complicated, and the position of the operator is a very forced one, and at the same time so wearisome that, in difficult cases, an immense amount of time and the most extreme perseverance is required on his part. For how long would a less skillful man operate, when Bozeman himself required four and a half hours in a difficult case for the completion of an operation? It is my opinion that Dr. B.'s method would gain considerably if he abandoned his complicated button-suture and adopted the simple silk or wire-suture; besides, if he would give up the superfluous, and sometimes even obnoxious, after-treatment with the catheter en permanence, in favor of my perfectly negative after-treatment.* Finally, I believe his results would be much improved, if in all such cases in which substance must be sparingly pared—I mean such fistulæ as extend into the urethra—he would substitute my mode of operation for his own.

From our Heidelberg operations, and more especially from the description of the Vienna cases, I have derived this benefit, that I now estimate gradual dilatation higher than I did heretofore, and I believe that it deserves urgent recommendation to inexperienced colleagues.

In regard to the exposure of the fistula, I will always try all positions in general use, and choose the one which furnishes the easiest access. * * * * * *

Thus much about Bozeman's operations performed in Heidelberg and Vienna; as regards our "concoirs," it was not yet closed. The number of cases was yet very small, and I had as yet not operated on a fistula situated high up; Dr. B., on the contrary, had operated on two cases of high fistula, and one deep, extending into the urethra. We had, therefore, agreed to continue the operations in the summer of 1875. I was then to operate on the fistulæ situated high up, more diffi-

* Marion Sims, who, a short time ago, was in Heidelberg, made us acquainted with his manner of position and of exposing the fistula, and verbally stated that, of late, he only exceptionally uses a permanent catheter in the after-treatment.

cult of access, but easier to cure. He (Boz.), on the contrary, was to operate on such as were situated further down, easier of access, but more difficult to cure. Especially was Dr. Bozeman to operate again on that fistula in which his result was so very unfortunate (Case II, which he had said he was able to cure with continence). To my regret, he never came back to Heidelberg any more.

In July, 1875, Dr. B. had published, without my knowledge, an article in the "New York Medical Record," and another in August in a Geneva political paper concerning our operations. For this reason I became acquainted with both of them only by chance, and very late after they were printed. Passing over the latter in silence, as written for an unscientific public, I must enter on the first, which was calculated for medical men, more closely, because in it are contained many inaccuracies and incorrect statements.

REMARKS ON DR. BOZEMAN'S ARTICLE IN THE NEW YORK MEDICAL RECORD, JULY 25, 1875.

I here quote the most startling sentences. In regard to the extent of the fistula and result of the operation in my first case, Dr. Bozeman says :

"The first case presented a good-sized fistula, which occupied the base of the bladder. About seven-eighths of the fistula was closed."

In this case not only the whole of the base of the bladder, but also the lateral parts of the vaginal vaults and a part of the urethra were defective. After the operation there was not one-eighth of the defect open, but only a small fistula the size of a lentil or a pea, at the highest, one-twenty-fifth of the line of union (see figure 2). Afterwards, when describing his second case, Dr. Bozeman says of the remaining opening, "the fistula was small."

In the description of my second case the following passage occurs :

"The operation which he performed had for its object the reclosure of the vagina, which I witnessed. It was kolpoplexis for the second time."

In this case I had, six years ago, completed an atresia of the vagina occurring after heavy labor by closing up a small opening. A stone, which was very likely not formed in the bladder, but in the kidney, and which had descended into the bladder, had perforated that part of the urethra which lay immediately between the obliterated vagina and orifice of the urethra, not, however, the cicatrix itself; therefore I did not perform a second kolpoplektesis, but I united the edges of the urethro-vaginal fistula in a longitudinal direction, that is, in a direction at right angles with the obliteration of the vagina. The line of union extended close to the orifice of the urethra (see figure 3).

Concerning the result of my third case, Dr. Bozeman says:

"The operation succeeded only to a limited extent, the failure being due probably to the cystitis which still existed to a slight extent at the time of the operation."

In this patient only a small fistula had remained, which, on examination four weeks after, had spontaneously entirely closed, so that here a complete cure was subsequently achieved by the operation. The patient suffered from cystitis, pains in the lumbar region, and fever after the operation; nevertheless, a cure ensued. Bozeman had in this case (he does not mention it) unsuccessfully tried gradual dilatation. I therefore instituted rapid extension immediately before the operation.

My fourth case is thus described by Bozeman:

"The fourth case of Prof. S. was a young woman, aged about twenty. She had a small fistula at the root of the urethra with complete atresia of the vagina above, with no outlet for the menses. Prof. Simon proposed in this case to close the fistula as the first step of the treatment; but instead of closing the fistula as he intended, he closed the vagina below the fistula, thus making the operation one of kolpoplektesis, with no provision for the escape of the menses. The result was only a partial success, and further treatment will be required to complete the occlusion."

In this case the fistula, as represented in figure 5, is situated below an atresia of the vagina, which, however, was not complete. There was an opening on the right side which led up to the right side of the os uteri. Bozeman tried (and this fact he

admits also) to dilate the vagina from the opening described, but in this case also without success (see history of Case IV). I therefore operated on the fistula, dividing the contractions of the vagina immediately above it so as to have easy access. The result was the one in which but a small fistula remained at the extreme corner which had not been caught in the suture (see figure 6). It is hard to comprehend how Dr. B. here also came to the conclusion that kolpokleisis was performed. After having read Boz's statement, I have at various times examined the patient in the presence of assistants and students, as well as traveling colleagues, and we have found the relation of the cured fistula to the incomplete atresia of the vagina, as given in figures 5 and 6. Through vaginal opening on the right side the os uteri can be reached; the partial atresia is situated above the healed fistula.

In the description of my second case, Dr. B. states:

"The second case was the one Prof. Simon first operated upon with partial success.* The fistula was small and involved the cervix uteri, perfectly simple and easy to get at, as shown by the fact that it took only thirty-five minutes to complete the operation. The case was just such a one that I would have guaranteed to cure in eight days, if I had had entire management of the after-treatment. But, as it turned out, the after-treatment was not properly carried out, and cystitis resulted, which caused the fistula to reöpen two days after the suture apparatus was removed."

Here the fistula had not only totally reöpened, but had become incurable so far as continence of the urine is concerned, and as I have above explained (see critical examination of the cases). I am convinced that by Dr. B.'s paring and suture the fistula could not even have been closed (see case). The fistula did not reöpen two days after the suture apparatus was removed, but urine flowed from the fistula at the time it was

* Dr. B. calls the result of my operation a partial success; a fistula of the size of a lentil or a pea had remained (see figure 2); but when Dr. Bandl puts the second of his Vienna cases among "the cures," though an opening the size of a probe-knob had remained (not much smaller than mine), and which he himself calls a vesico-uretero-vaginal fistula, he quietly accepts the situation.

taken off. True, the fistula was only found completely open on examination two days afterwards. Dr. B. here accuses the after-treatment of the unfavorable result as not having been carried out according to his wish. But he conducted the after-treatment himself, as above stated. He visited his patient three or four times a day, and my very skilled assistants carried out all he wished for. I can not imagine how Dr. B. could have better provided for the after-treatment. The fullest proof that the after-treatment was not the reason of his bad success is given in the fact that I cured the fistula under far more difficult conditions without the use of the catheter, the rinsing of the bladder, and without opium. Dr. Bozeman afterwards changed his opinion. In a letter which I received from him, dated Paris, October, 1875, he assigns as the reason for his failure ignorance as to the relative position of the urethra and fistula during the operation; and, besides, that in my previous operation the edges had not been pared and united in the knee-elbow position, that is, not in situ of the parts!

In the description of his third case, Dr. B. remarks:

"The operation proved tedious and protracted, though it was entirely satisfactory. Prof. S. expressed himself satisfied, and said he did not see how it could fail to succeed. Six or eight hours after the operation, I found an unusually small quantity of urine passing per catheter, which at once aroused my suspicions as to the right ureter being closed between two of my sutures. A few hours later the patient had great pain in the right kidney, and then felt a gush of urine into the vagina, with complete relief. When I saw her again, about eighteen hours after the operation, and learned the true story of the case, I told Prof. S. we would have a partial failure of the operation corresponding to the point at which the right ureter lay in the posterior edge of the fistula. The same accident having occurred some years ago in a case in the Hôtel-Dieu of Paris, upon which I operated, and in other cases, I felt confident of the final result—a partial failure. The removal of the suture apparatus on the eighth day in this case fully confirmed my explanation. A small fistula remained about the middle of the line of cicatrization, which was nearly two inches in length. This remain-

ing fistula is, properly speaking, a vesico-uretero-vaginal fistula. Now that the precise situation of the ureter is known, there can be no difficulty in the next operation, when a complete cure may be expected."

The remaining fistula was not as Boz. states, situated in the centre of the cicatrix, but at its inward (next to the middle line) end, just before the anterior lip of the os uteri, and is no vesico-uretero-vaginal, but a common vesico-vaginal fistula. It is, therefore, situated more favorably, and is not of as bad a nature as Boz. makes out. The symptoms which he (B.) describes as proof for the compression of the ureter by a suture, are by no means characteristic. The fact that but a very small quantity of urine had passed through the catheter the first six or eight hours, the pains in the lumbar region which appeared a few hours later in the right kidney, and their relief after a sudden gush of urine, may all be accounted for by an incomplete occlusion of the catheter, caused by a clot of blood. For this reason the urine flowed very scantily from the catheter, the greater part being retained in the bladder. When the bladder was highly distended the coagulum was forcibly thrown out, and the urine partially escaped along the side of the catheter.* The reason that the pain in the region of kidneys was unilateral, doubtless rests on casual circumstances, or accidental assertions of the patient, who was still considerably under the influence of chloroform; for pains which arise after sudden occlusion of the ureter appear much sooner, as I have observed, after closing the ureter by cautery in cases of uretero-vaginal fistulæ; about one or at the most two hours after the occlusion, and they are of extreme vehemence. They appear under the picture of severe colic of the kidneys. (See my paper in Scanzoni's Beiträgen, Vol. VI, 1860.) Bozeman here considers the cure of vesico-uretero-vaginal fistula very easy, because he is acquainted with the location of the ureter, quite in contradiction with his second case in Vienna (see above).

* Bozeman supposes that the gush of urine passed through the vagina, perhaps, because the sheet was wet. But of course neither he nor the patient could possibly judge whether the urine had taken its way through the fistula or through the urethra, alongside of the catheter into the underlying sheets.

At the close of his article the following sentence is found:

"At the second operation of Prof. Simon and myself, which we performed the same day, Dr. Kœberlé, of Strassburg, the celebrated ovariologist, was present. He came to Heidelberg and spent two days to see us operate. Prof. S. frankly admits the superiority of my operation in all cases when the fistula is situated high up. He is delighted with my speculum, and, indeed, has ordered all my instruments to be copied, even my operating chair."

In regard to the remark which I passed on Dr. B.'s method after his first operation, I have above explained myself. It is evident that it was very prematurely published. If Dr. B. had asked my opinion a little later he would have heard that it was very soon changed. Concerning the acquisition of Dr. Bozeman's instruments and apparatus, I have in a letter to Dr. Beigel, who asked my opinion, said that I had bought the same, partly to demonstrate them to my scholars, and partly to make experiments with the same.* Up to the present time I have not been so converted to use Dr. B.'s method. In the summer and fall of 1875 I cured nine fistulæ, all clinical cases (six of them, each by one operation), but have never once made use of Dr. Bozeman's method, because I felt convinced that I would succeed more quickly and safely with my own.

* * * * *

The above criticism of Dr. B.'s articles was necessary in order to state the facts correctly before the Profession. Yet I am far from reproaching Dr. B. for having willingly made incorrect statements. I am rather of the opinion that it was his ardent zeal for recognition (acknowledgment) (?) which prompted him to publish these over-hasty statements.† The

* See Wiener Med. Wochenschrift, 1876, No. 5 (note by the translator). There is a fund in every German university for buying instruments, though they be never used, merely to complete the armamentarium collection of the cliniques.

† In the Geneva article I find the author complains that Dr. B. is not appreciated according to his merit by his American colleagues. The sentence is the following: "We have heard it hinted that the welcome which Dr. B. has met from the profession in Europe is with contrast to the treatment which he has received at the hands of some of his professional brethren in America."

main errors were caused by the fact that Dr. B. did not take the trouble to examine the results of my operations later than the fifth or seventh day after the lifting of the sutures, when examination was very difficult, even to myself. Had he watched the results after cicatrization, and taken more pains to study the pathological relations of the fistulæ which I had operated upon before him, he would have been better posted. Thus it happened that he came to call the result in my third case, in which a complete cure was achieved after spontaneous occlusion of the little fistula, a cure of "limited extent;" and that in the fourth case, in which but a small fistula at one end remained, which had not been comprised in the suture, was called "only a partial success." By his superficial examination he arrived at the marvelous conclusion, that in my second and fourth cases I had practiced transverse obliteration of the vagina, though in the second case the fistula was united at right angles to the preëxisting obliteration of the vagina (figure 3); and though he had himself tried bloody dilatation and tamponade of the vagina (figures 5 and 6). Dr. Bozeman certainly is too expert an operator on fistulæ not to know that the result after cicatrization, and later by contraction of cicatrix, often becomes materially better than it seems while the edges are not yet completely cicatrized. Doubtlessly he also knows that pathological relations which may be connected with a fistula are frequently only fully cleared up after repeated and careful explorations.

I have asked Dr. B. several times myself to examine the fistulæ, once on his travels through Heidelberg, about six or eight weeks after the operations, and in two letters written to him to Paris in October of the same year. But the first time he had to depart too soon, and the second time he said he was kept back by family affairs from a journey to Heidelberg. But even if there was no chance for him to examine the fistulæ personally, he might easily have avoided errors in his statements, or corrected them in a subsequent article, if he had only inquired about the final results by letter. From the reception which he found among us, and which he himself publicly acknowledged, he had to conclude that full statements would most willingly have been furnished him.

* * * *

Finally, I must add that this article appears thus late because I expected Boz. back here for a continuance of the concours until October, 1875. When he was not able to come I waited some time longer, in order to communicate the result of my operations performed in October and November on the patient, on whom he had unsuccessfully operated (see his second case). When at last I came to write the article, my health was so impaired that I could only work at it very slowly.

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